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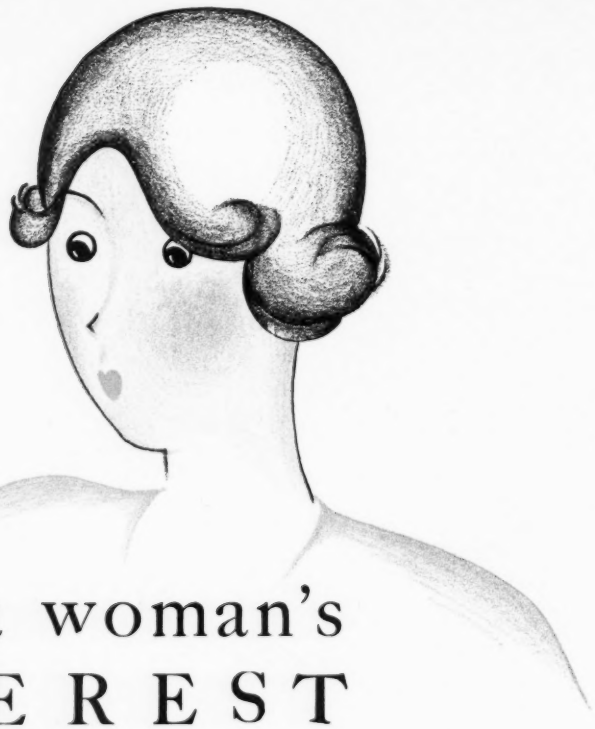
DOMESTIC ENGINEERING

The Plumbing and Heating Weekly

Billboard of an alert San Francisco firm.

Selective Selling

DECEMBER 22, 1928



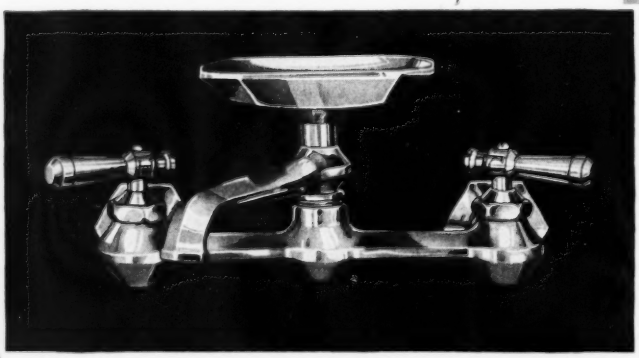
To catch a woman's INTEREST

Show a woman a way to make her kitchen work easier, or her kitchen more attractive, and you win her interest at once. Show her that she can have improvement she wants at a cost she can afford and the sale is made.

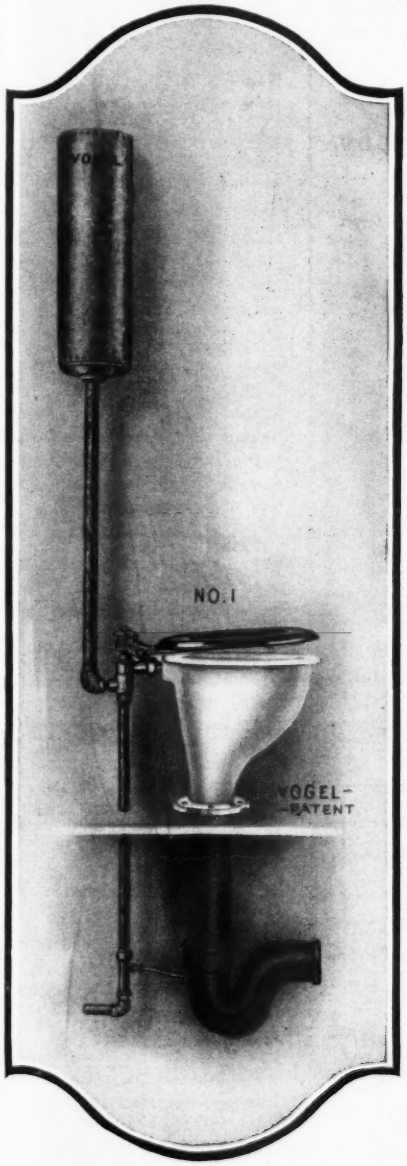
That is why Speakman's new Diamond sink fixture was bound to be a big seller. Women want it. Graceful in every line. Beautifully finished in sparkling, tarnish-proof chromium plate, which never needs polishing. Swinging spout. Yet priced amazingly low and including in this price a liberal profit for the Master Plumber.

These new *Diamond* sink fixtures are already in demand. Many Master Plumbers say they are the fastest sellers they have seen in years. Ask your distributor about them—and about the new counter display which helps you sell.

SPEAKMAN COMPANY, Wilmington, Del.



SPEAKMAN
SHOWERS & FIXTURES



VOGEL *Frost Proof Closet No. 1*

Merrie Christmas

Merrie Christmas Gentlemen
A Happy New Year Too
May all the blessings of the day
Be showered down on you.

May your business outlook be
So good you'll call it "Fine!"
And may you increase all your sales
Of the **VOGEL** Frost Proof Line.

Jovo

Jos. A. Vogel Co.

Wilmington, Del. **St. Louis, Mo.**

VOGEL PATENTED

Advertisers This Week

Air Reduction Sales Co.... 73
Alberene Stone Co.....Inside Back Cover
Armstrong Bros. Tool Co.. 71
Aurora Pump Co.....103
Ayling & Reichert Co.....103

Ballantine, Benj. B.....104
Barnes Tool Co., Inc., The. 57
Beaton & Cadwell Mfg. Co. 74
Benson Co., Inc., Alex R...103
Bignall & Keeler Machine Works 102
Borden Co. 74
Bridgeport Brass Co..... 11
Brunswick-Balke-Collender Co. 41
Buffalo Forge Co..... 86
Built-Well Mfg. Co..... 93
Bullard Specialty Co.....104
Burnham Boiler Corp.....Back Cover
Byers Co., A. M..... 59

Capitol Brass Division.... 78
Central Brass Mfg. Co.... 78
Chicago Faucet Co..... 77
Chicago Pipethread Machine Co. 82
Clarage Fan Co. 94
Cleveland Gas Burner & Appliance Co. 63
Clow & Sons, Jas. B..... 47
Columbia Radiator Co..... 98
Crampton-Farley Brass Co. 93

Dahlquist Mfg. Co..... 88
Detroit Torch & Mfg. Co...101
Dole Valve Co..... 49
Domestic Sales Corp..... 93
Donnelly Mfg. Co..... 76
Duriron Co., The.....100
Duro Co. 83

Eagle-Picher Lead Co..... 83
Eastern Foundry Co..... 87
Enterprise Brass Works... 82
EverHot Heater Co..... 5

Flagg & Co., Stanley G.... 91
Fuller & Co., F. W.....104

Grabler Mfg. Co..... 78
Grand Haven Brass Fdy.. 87

Haas Co., Philip..... 91
Hanson Bros. Scale Co....103
Healy-Ruff Co. 96
Heggie-Simplex Boiler Co.. 78
Hotel Adelphia 104
Hotstream Heater Co..... 74
Hutchison Regulator Sales Corp. 91

Imperial Brass Mfg. Co.... 77

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Leading Articles in This Issue

Central Heat Control in the Oliver Building in Pittsburgh. By L. B. Pittock. Page 18.
Oil Heating in a Modern Dairy. Page 22.
Commercial Refrigeration. Page 23.
Selective Selling. By Thomas White. Page 25.
Eliminate Loose Leaf Credit. By W. H. Stanton. Page 32.
Sanitation in Ontario Lumber Camps. By Wm. C. Millar. Page 35.
Some Plumbing Troubles. By A. W. Barnes. Page 37.
Concealed Radiation. By Harold L. Alt. Page 43.
How to Pump Hot Water. By Wm. Mason. Page 46.

Special Departments

Between Ourselves. Page 15.
Editorials. Page 17.
Lead—Its Story and Its Uses. Page 50.
Markets—Business Reports from Large Jobbing Centers. Page 53.
Retail Advertising Service. Page 62.
Questions and Answers. Page 66.
This Week—Among Manufacturers, Wholesalers and Salesmen. Page 69.
The Trade—News for Plumbing and Heating Contractors. Page 79.
Woman's Page. Page 89.
Plumbing and Heating Patents. Page 95.

Advertisers This Week

Jenkins Bros. 81
Johns-Manville Corp. 6

Kemp Mfg. Co., C. M..... 72
Kewanee Boiler Corp..... 71

Leader Specialty Co., Inc..105
Leonard-Rooke Co. 99

Maddock's Sons Co., Thos.. 42
McDonnell & Miller..... 84
McShane Bell Fdy. Co..... 91
Milwaukee Valve Co..... 60
Myers & Bro. Co., F. E... 77

Nash Engineering Co..... 63
National Lead Co...44 and 96
National Radiator Corp... 12
Neptune Meter Co..... 75
Novelty Steam Boiler Wks. 84
Nye Tool & Machine Wks. 13

Ohio Brass Co., The..... 71
Ohio Heater Co..... 61

Pacific Steel Boiler Corp. of Illinois 10
Penberthy Injector Co..... 76
Penna. Range Boiler Co... 83
Phoenix Brass Fdy..... 74

Richardson & Boynton Co.. 7
Richmond Fdy. & Mfg. Co., Inc. 77
Robertshaw Thermostat Co. 90
Rundle Mfg. Co..... 68

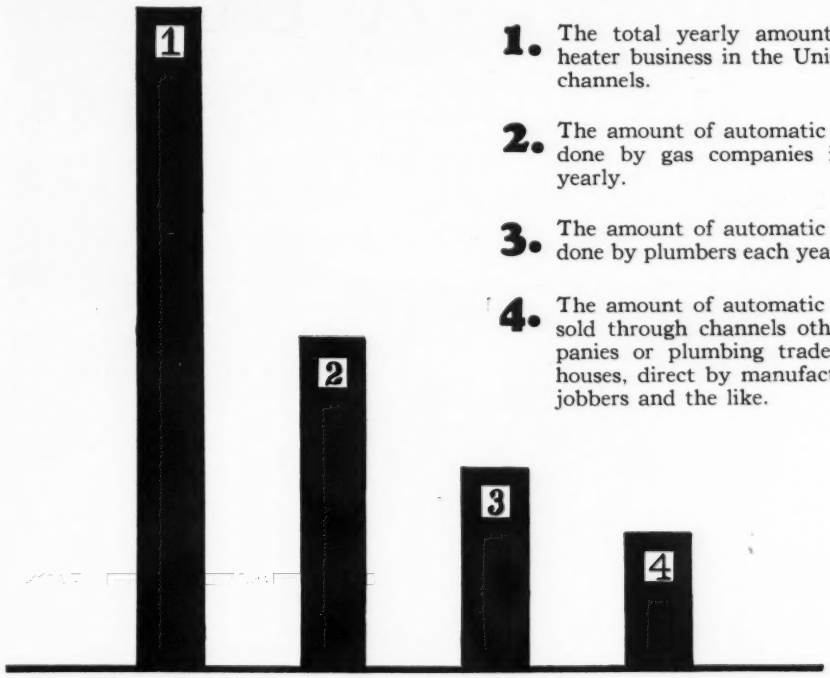
Sheer Co., H. M..... 86
Simplex Mfg. Co..... 93
Sloan Valve Co..... 52
Smooth-On Mfg. Co..... 92
Speakman Co.....Inside Front Cover
Stack Heater Co..... 73
Standard Sanitary Mfg. Co.....38 and 39
Stebbins-Rich Brass Mfg. Co. 72

Taber Pump Co..... 83
Titchener & Co., E. H..... 99
Toledo Pipe Threading Machine Co. 16
Trenton Brass & Mach. Co. 85

Vogel Co., Jos. A..... 3

Wade Iron Sanitary Mfg. Co. 96
Weil Pump Co..... 84
Wise, Inc., J. B..... 65
Wolff Co. 71

Zurn Mfg. Co., J. A..... 84



1. The total yearly amount of automatic water heater business in the United States through all channels.

2. The amount of automatic water heater business done by gas companies in the United States yearly.

3. The amount of automatic water heater business done by plumbers each year in the United States.

4. The amount of automatic water heater business sold through channels other than the gas companies or plumbing trade, such as mail order houses, direct by manufacturers to users, "gyp" jobbers and the like.

IS THE PLUMBER A MERCHANT?

The plumbing trade today is faced with a crisis. There are more master plumbers in business than are necessary to do the actual plumbing work of the country. What is the answer to the problem? Certainly it is not cut-throat competition within the industry itself.

The answer is: The plumber must become more of a merchant.

And the plumber is doing that very thing. The plumbers of the country are now doing nearly one-third of the automatic water heater business of the country—a much larger percentage than they enjoyed a few years ago.

However, the other two-thirds that Gas Companies and others are doing, would go far to solve the plumbers' present day crisis. It amounts to millions of dollars each year. In a short time it will amount to hundreds of millions of dollars.

The automatic heater is a plumbing item. The public can be better and more economically served on automatic heaters by the plumber. The business is worth fighting for. The plumber needs it but he will have to fight for it.

EverHot Heaters are sold through the plumbing trade only.

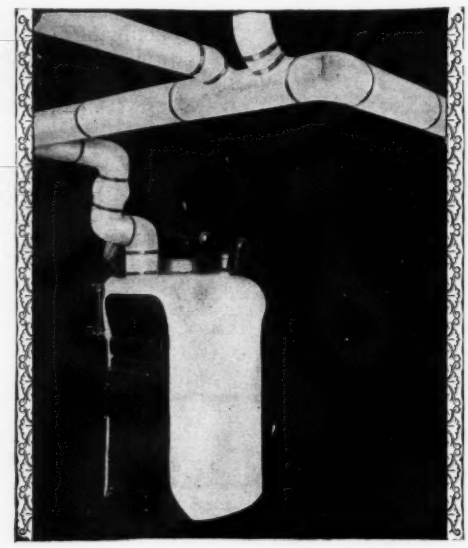
WHAT ARE YOU DOING FOR THE CAUSE?

EverHot Heater Company

5211 Wesson Avenue :: **Detroit, Michigan**

ASBESTOCEL

A NATIONALLY STANDARDIZED INSULATION FOR HEATER PIPES



The choice of insulation for heater pipes is exceedingly important, yet the decision is easily made. Improved Asbestocel is the low-pressure pipe insulation which is nationally sold and which is standard in quality and performance everywhere. When you apply 3-ply Asbestocel you know that the performance and the appearance of the insulation will be the same wherever the building is located, and whatever its size is. There is no other heater pipe insulation which offers you such standardization.

National advertising in general magazines, building papers and other trade papers, keeps Asbestocel before the public. Building committees and individual house owners know the name and will gladly accept your suggestion of Asbestocel.

Asbestocel is a product of Johns-Manville, pioneer workers in Asbestos. It is guaranteed by Johns-Manville to be stronger and more efficient than any of the ordinary air cell insulations.

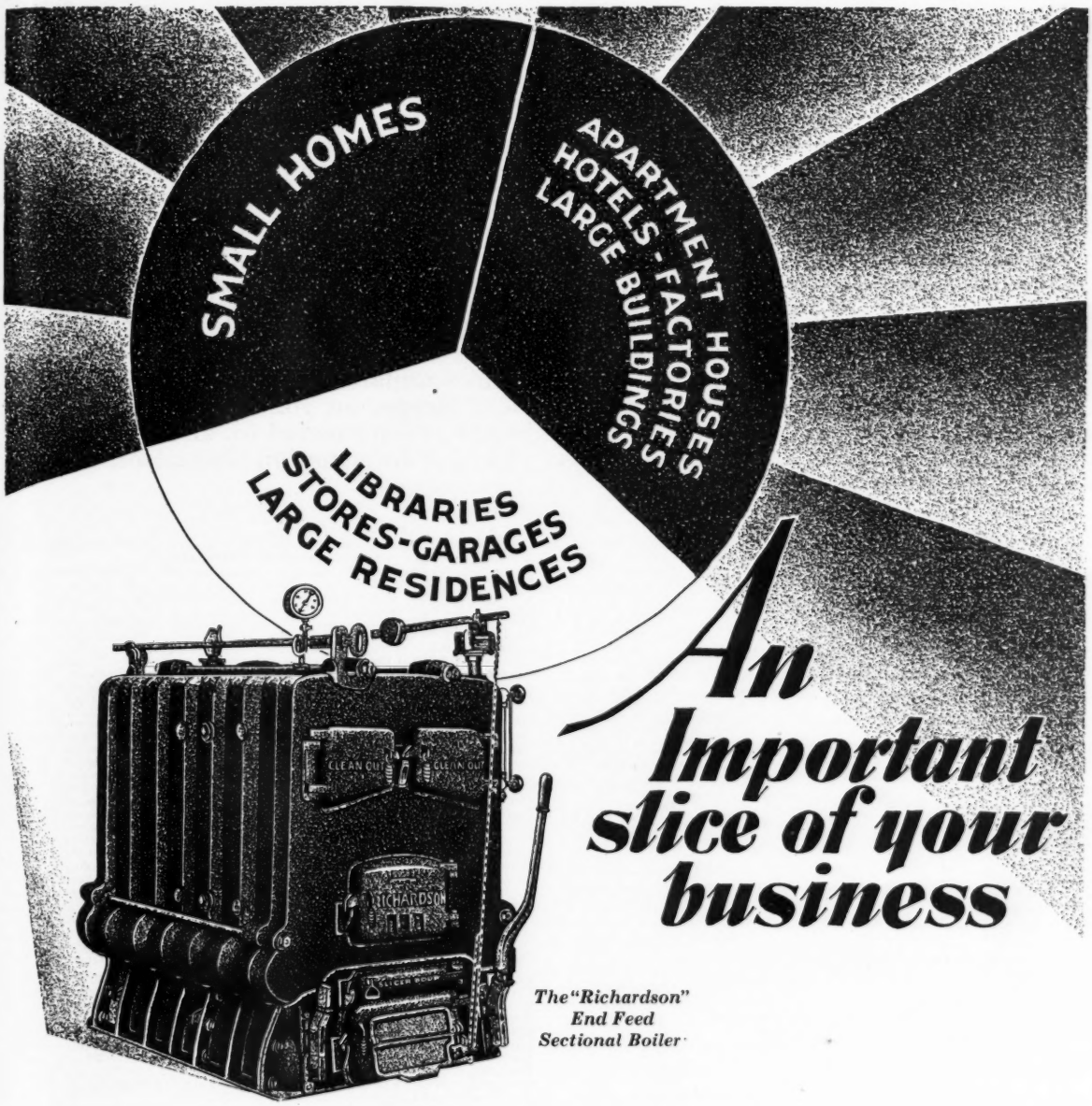
Because Improved Asbestocel is standard in length and diameter it can be applied more rapidly than the odd lengths and sizes of ordinary air cell. A neat looking job completed more rapidly is the result.

Johns-Manville maintains a large department for the purpose of coöperating with the plumbing and steam-fitting trade on many problems connected with heating houses and buildings of all types. We invite your inquiries, which entail no obligation. Address: Johns-Manville Corporation, Improved Asbestocel Department, 292 Madison Avenue, New York City.

MASTER *of* ASBESTOS

Johns-Manville

IMPROVED ASBESTOCEL



An Important slice of your business

The "Richardson" End Feed Sectional Boiler

THE medium sized installation is a gold mine for some dealer. Are *you* digging into it? If not, start *now*.

Standardize on the "Richardson" End Feed Sectional Boiler. There is a size for every job between the small home and the big building installation. The generous grate areas, high combustion chambers, big heating surface and long fire travel assure real efficiency. And the honest ratings are covered by the usual guarantee of the Richardson & Boynton Co.

Don't overlook the important "middle" market—and above all don't overlook the best way to serve it.

This Company believes in the utmost protection to the dealer—the logical link between factory and consumer.

RICHARDSON & BOYNTON CO

Manufacturers of "Richardson" "Perfect" Heating and Cooking Apparatus Since 1837

260 Fifth Avenue New York City

New York Utica Newark Philadelphia Boston Chicago Buffalo Minneapolis Cincinnati Pittsburgh Detroit Providence

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Leonard-Rooke Co. ..... Providence, R. I.
Liquid Veneer Corp. ..... Buffalo, N. Y.
Lissberger & Son, Inc., Marks ..... Long Island City, N. Y.
Little Giant Mfg. Co. ..... Minneapolis, Minn.
Luzerne Rubber Co., The ..... Trenton, N. J.
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McCoy Mfg. Co., Inc. ..... New York City
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Nason Mfg. Co. ..... New York City
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National Steel Tank & Mfg. Co. ..... Bradford, Ill.
Neptune Meter Co. ..... New York City
Newark Brass Works ..... Newark, N. J.
Newark Brush & Scraper Co. ..... Irvington, N. J.
Newbury Mfg. Co. ..... Monroe, N. Y.
Newbury & Son, Jay H. ..... Goshen, N. Y.
Newell Mfg. Co. ..... Irwin, Pa.
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Nustone Products Corp. ..... Union City, N. J.
Nye Tool & Machine Works ..... Chicago, Ill.

Ohio Brass Co. ..... Mansfield, Ohio
Ohio Heater Co., The ..... Columbus, Ohio
Olsen, H. T ..... New York City

Paine Co. ..... Chicago, Ill.
Para Rubber Co. ..... Newark, N. J.
Penn Engineering Co., The ..... Philadelphia, Pa.
Perfection Stove Co. ..... Cleveland, Ohio
Phenolic Products Corporation ..... Rockford, Ill.
Phillips Drill Co. ..... Chicago, Ill.
Phoenix Brass Foundry ..... Irvington, N. J.
Pierce, Butler & Pierce Mfg. Corp. ..... New York City
Pittsburg Water Heater Co ..... Pittsburgh, Pa.
Plomb Tool Co ..... Los Angeles, Cal.
Plussco Co ..... Concord, N. H.
Polygon Products Co ..... Boston, Mass.
Porcela-Radax Co ..... Pittsburgh, Pa.
Powers Regulator Co ..... Chicago, Ill.

Radiant Steel Products Co. ..... Williamsport, Pa.
Radiator Specialty Co ..... Charlotte, N. C.
Randolph-Clowes Co., The ..... Waterbury, Conn.
Rathbun Products, Inc ..... Detroit, Mich.
Rawlplug Co., Inc., The ..... New York City
Reading Brass Works ..... Reading, Pa.
Reed Mfg. Co. ..... Erie, Pa.
Reeves Specialty Co. ..... Denver, Colo.
Reinhardt Mfg. Co., Edwin G ..... Cincinnati, Ohio
Rhode Island Fittings Co ..... Providence, R. I.
Richards Corp. ..... Pittsburgh, Pa.
Richmond Engineering Co ..... Richmond, Va.
Richmond Foundry & Mfg. Co., Inc ..... Richmond, Va.
Ridge Tool Co. ..... Elyria, Ohio
Riverside Boiler Works, Inc ..... Cambridge, Mass.
Riverside Foundry & Galvanizing Co. ..... Kalamazoo, Mich.
Robbins, Gamwell & Co ..... Pittsfield, Mass.
Roberts Brass Mfg. Co., The ..... Detroit, Mich.
Robinson Mfg. Co., The ..... Cleveland, Ohio
Rockford Brass Works ..... Rockford, Ill.
Rock Island Mfg. Co. ..... Rock Island, Ill.
Royal Brass Mfg. Co., The ..... Cleveland, Ohio
Rumsey Pump Co., Ltd. ..... Seneca Falls, N. Y.
Russell Appliance Co ..... Springfield, Mass.
Russell Mfg. Co., Inc., John M ..... Naugatuck, Conn.
Russell & Co., W. A. ..... New York City
Rutland Fire Clay Co. ..... Rutland, Vt.

Sands Mfg. Co. ..... Cleveland, Ohio
Sanitary Bath Curtain Mfg. Co., Inc ..... New York City
Sanitary Engineering Co ..... Pittsburgh, Pa.
Sanitas Mfg. Co ..... Boston, Mass.
Sarco Co., Inc. ..... New York City
Scadron Brothers ..... New York City
Scaife & Sons Co., Wm. B ..... Oakmont, Pa.
Scientific Heater Co. ..... Cleveland, Ohio
Scott Valve Mfg. Co. ..... Detroit, Mich.
Semler Company ..... Jeannette, Pa.
S. E. T. Valve & Hydrant Co. ..... New York, N. Y.
Sherwood Brass Works ..... Detroit, Mich.
Simonds Saw & Steel Co. ..... Fitchburg, Mass.
Simplex Boiler Stand Co ..... Brooklyn, N. Y.
Simplex Mfg. Co ..... Chicago, Ill.
Spencer Regulator Co ..... Salem, Mass.
Standard Elsmere Granite Co ..... Chicago, Ill.
Standard Tank & Seat Co. ..... Camden, N. J.
Standard Water Systems Co. of N. J. ..... Hampton, N. J.
Stark Pump Co ..... Detroit, Mich.
Sterling Faucet Co ..... Newcomerstown, Ohio
Stoll, Chas. J. ..... New York City
Stringer Brothers Co. ..... Chicago, Ill.
Structural Slate Co ..... Pen Argyl, Pa.
Superbestos Co., The ..... Chicago, Ill.
Swett Iron Works, A. L. ..... Medina, N. Y.

Taylor Co., Halsey W., The ..... Warren, Ohio
Teck Manufacturing Co ..... Chicago, Ill.
Test-Tite Co ..... Philadelphia, Pa.
Thatcher Co. ..... Newark, N. J.
Thermal Appliance Company, Inc. (New Name—
Taco Heaters, Inc.) ..... New York City
Tillery's Little Janitor Clock Co. ..... Newark, N. J.
Toledo Pipe Threading Machine Co ..... Toledo, Ohio
Trageser Steam Copper Works, John ..... Maspeth, N. Y.
Trenton Brass & Machine Co. ..... Trenton, N. J.
Trimont Mfg. Co., Inc. ..... Boston, Mass.
Tryco Products, Inc ..... Westfield, Mass.

Universal Smokeless Boiler Co ..... Ravenna, Ohio
Utility Laboratory, Inc. ..... Brooklyn, N. Y.

Van Arnam Mfg. Co. ..... Fort Wayne, Ind.
Vanderman Mfg. Co ..... Willimantic, Conn.
Vinco Co., Inc. ..... New York City
Vitreous Enameling & Stamping Co., Inc. ..... New York City
Vogel Co., Joseph A. ..... Wilmington, Del.
Vulcatex, Inc ..... Chicago, Ill.

Wade Iron Sanitary Mfg. Co. ..... Chicago, Ill.
Walworth Company ..... Boston, Mass.
Ware Coupling & Nipple Co ..... Ware, Mass.
Warnock Manufacturing Co ..... Worcester, Mass.
Washington Metal Products Co ..... Washington C. H., Ohio
Watts Regulator Co. ..... Lawrence, Mass.
Weis Mfg. Co., Inc., Henry ..... Elkhart, Ind.
Wesely Co., Chas. ..... Chicago, Ill.
Wessels & Sons, D. D. ..... Detroit, Mich.
Western Metal Specialty Co ..... Milwaukee, Wis.
Western Wire Products Co. ..... St. Louis, Mo.
Wheeling Machine Products Co ..... Wheeling, W. Va.
White Flush Valve Mfg. Co. ..... Denver, Colo.
White Steel Sanitary Furniture Co ..... Grand Rapids, Mich.
Whitlock Coil Pipe Co. ..... Hartford, Conn.
Wilkins Co., Geo. H. ..... Chicago, Ill.
Wilks Mfg. Co., S. ..... Chicago, Ill.
Williams & Co., J. H. ..... Buffalo, N. Y.
Woodward-Wanger Co. ..... Philadelphia, Pa.
Worcester Brush & Scraper Co. ..... Worcester, Mass.

"X" Laboratories ..... New York City

Yeomans Brothers Co. ..... Chicago, Ill.
Yost Mfg. Co ..... Meadville, Pa.

Successful Buildings are Heated by

PACIFIC
STEEL HEATING BOILERS

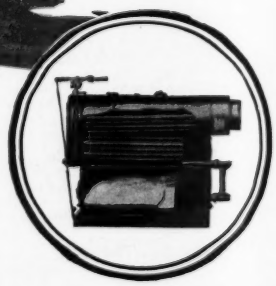
5421 Cornell Avenue, Chicago

McKey & Poague
Sales Agents

Reichert & Finck
Architects

H. P. Reger & Co.
Heating Contractors

PACIFIC Steel Heating Boilers meet the rigid requirements of tenant owners for a boiler that has strength, safety and high efficiency. In these qualities are found the three outstanding Pacific construction features—greater direct heating surface—large combustion space—and longer fire travel. For lowest operating cost and for dependable, trouble-free performance the builders of this exclusive co-operative apartment building realized the economy of installing a Pacific Steel Heating Boiler. Let us send you complete information about the various types of Pacific Boilers.



PACIFIC STEEL BOILER CORP.

Waukegan, Ill. / / / Bristol, Penna.

Division of U. S. Radiator Corp., Detroit

Sales Offices in 58 Cities

Time Proves the Facts

A typical "Plumrite" service record is that of the installation in the St. Regis Hotel, New York. "Plumrite" brass pipe was used throughout for both hot and cold water lines. Since the hotel opened, in 1901, there has never been a leak in the system. Some of the pipe was removed for building alterations in 1922. These sections showed perfect exterior and interior surfaces, full thickness of the wall, and perfect threads.

which brass pipe should you choose?

Brass is not an elemental material. It is a manufactured product and its capacity for maximum service depends entirely upon the skill, knowledge, and experience of the maker.

PLUMRITE brass pipe has been tested in actual use over a long period. Thirty years of service have proved that its composition is practical — that its method of manufacture does guarantee uniformity. Re-installation in old, built-over buildings has clearly shown its ruggedness.

Other mixtures, with various copper contents, have been tried and found suitable for certain localities, but they bring no advantages to the vast majority of installations. For unusual requirements Bridgeport can supply brass pipes of any desired mixture. But Plumrite is recommended as the most satisfactory pipe under general conditions.

Plumrite brass pipe is, we believe, as nearly perfect as a brass pipe can be. Time and again, experience has borne out this belief.

Our booklet, "Bridgeport Standard Mixtures," explains the standard brass pipe mixtures in use to-day—and tells when and where to use them. It will be mailed free to you on request. Send for a copy.

BRIDGEPORT BRASS COMPANY

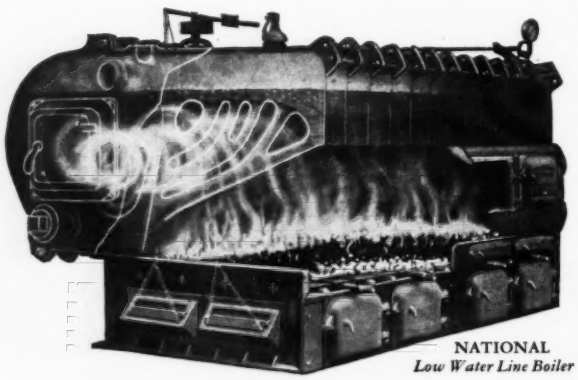
BRIDGEPORT Bridgeport BRASS CO CONNECTICUT

"MAKERS OF BRASS PRODUCTS FOR OVER 60 YEARS"

Rx REPLACEMENT JOBS

There is a NATIONAL BOILER to fit every requirement

The National Line comprises types and sizes for every need. Substantial profits—enduring good-will—await those fitters who prescribe time-tested, efficient National Boilers, on their replacement jobs. Here are four representative members.



NATIONAL *Low Water Line Boiler*

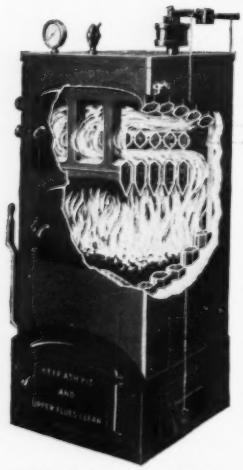
NATIONAL ROUND BOILER: Steam or hot water, for homes and small buildings. Staggered fire travel—full-sized grates. Deep fire pot with extra large combustion chamber.

NATIONAL JACKETED BOILER: For homes and small buildings. Housed in a snappy, dirt-defying empire-green jacket. Attractive—effective—easily tended—business-like—dependable.

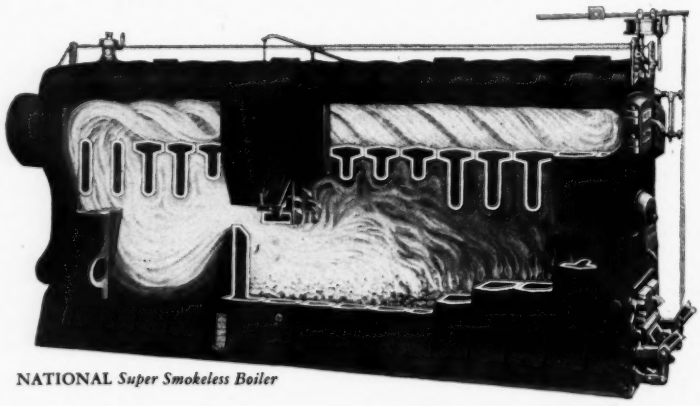
NATIONAL SUPER-SMOKELESS BOILER: For large homes, churches, schools, etc. Easily meets the most stringent smoke ordinances. Two-stage combustion and rotative fire travel assure unexcelled performance. Also made in hard coal type.

NATIONAL LOW WATER LINE BOILER: Particularly well adapted for low basements. Low construction provides ample space between water line and low point of main. Water tube design makes it a quick steamer—side feed makes it easy to fire. For large homes, theatres, garages and apartments and similar applications.

NATIONAL *Round Water Boiler*



NATIONAL *Jacketed Boiler*



NATIONAL *Super Smokeless Boiler*

All these National Boilers are well adapted to oil burning. And all, like every unit in the National Line, are sold only through the recognized trade. Complete information gladly—and immediately—furnished. Just call, or write, the nearest office.

NATIONAL PRODUCTS

AERO

NATIONAL RADIATOR CORPORATION

MANUFACTURER OF RADIATORS AND BOILERS

Nine Plants devoted to National Service through these Branch Offices and Warehouses:

Baltimore, Md.—2600-2622 Matthews St.
Buffalo, N. Y.—259-265 Delaware Ave.
Cleveland, Ohio—935 E. 63rd St.
Indianapolis, Ind.—431 W. Georgia St.
Milwaukee, Wis.—124-130 Jefferson St.
Omaha, Neb.—108-112 S. Tenth St.
Pittsburgh, Pa.—1509 Arrott Bldg.
St. Louis, Mo.—1042 Central Industrial Ave.
Boston, Mass.—93-97 Oliver St.
Chicago, Ill.—2445 N. Keeler Ave.
Cincinnati, Ohio—3530-36 Spring Grove Ave.
Johnstown, Pa.—221 Central Ave.
New York, N. Y.—55 W. 42nd St
Philadelphia, Pa.—121 N. Broad St.
Richmond, Va.—3032 Norfolk St.
Washington, D. C.—2205 Fifth St., N. E.

A Letter from Harry G. Nye

Dec. 22, 1928

To the Plumbers and Steamfitters of the U. S. A.

Fellow Citizens:

They tell about a printer who was so dumb that he had to get someone to help him make a mistake. But most of the men I have known needed no assistance whatever. It was no trick at all for the grocer's boy to leave the wrong groceries at the wrong house in the wrong street, without any help.

I make no exception of myself. I decided long ago that everything has to be done twice, the first time wrong. Few of us pick up the right length of pipe the first time. The man who invented the cigar-lighter was pretty smart. He fixed it so it would light the second time, not the first.

And so, I say, be not discouraged. I never knew a widow who was. She was just as ready to take a second chance. The very fact that the marriage service says "for better or for worse" proves it is an even proposition. As a matter of fact, the preacher ought to give us odds.

Do not be downhearted. The man who makes too high a bid will lose the first time, but next time he will bid too low and lose more. Then after awhile he will bid about right and get all the good ones and lose all the bad ones. Most of the men who make money make mistakes first.

When I was a boy, whenever the farmers needed rain we got up a picnic. If I didn't like the tool business so well I might tackle Wall Street. All I would have to do to make a stock go up would be to sell it, and all I wouldn't have to do to make it go down would be to buy it.

Someone asked Chauncey Depew if he had ever made a serious mistake. "Well," he said, "I was offered an eighth interest in the American Telegraph & Telephone once for $10,000." Edison made 599 mistakes on one invention. The 600th time he was right. When you make mistakes, you're still 598 ahead of Edison.

But when I admit I have made mistakes I am not knocking Nye Tools. The reason Nye Tools are so good is because they were never good enough if they could be made any better. That is how it happens that they have been made the best pipe-cutting tools on earth. And there's no mistake about that.

Unmistakably yours,

Harry G. Nye

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All rights reserved.

NYE

Thin Blade Cutter Wheels Knurled or Smooth Edge

Made to Fit All Standard Makes of Pipe Cutters

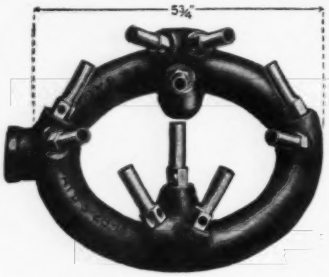
Knurled Edge

Smooth Edge

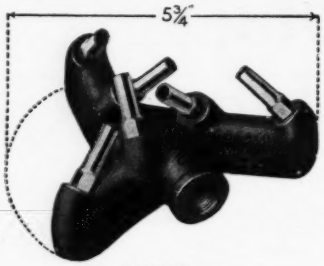
Nye cutter wheels are made from the highest grade tool steel, and are hardened and tempered in oil. Blades about 1/8th of an inch thick and straight from hub to cutting edge. Cut with one-third the time and power required by old type wheels. And also they are—

ABSOLUTELY GUARANTEED

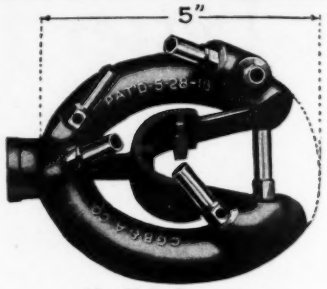
OTHERWISE KNOWN AS
THE NYE TOOL & MACHINE WORKS
MANUFACTURERS OF HIGH GRADE PIPE TOOLS
4120-30 Fullerton Avenue Chicago, Illinois



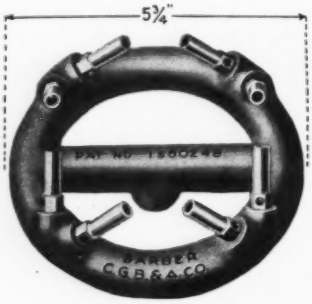
No. S-80 Burner



No. Y-10 Burner



No. K-50 Burner



No. S-15 Burner

Among the Manufacturers who have adopted Barber Burners as Standard in their Hot Water Heaters, Boilers and Appliances are the following:

Akron Equipment Co.
American Radiator Co.
Arthur & Fowler Co.
Bean Spray Pump Co.
Bryan Steam Corp.
Cartier Engineering Corp.
Carrier-Lyle Corp.
Champion Dish Washing Machine Co.
Coast Heater Mfg. Co.
Cole Mfg. Co.
Dahlquist Mfg. Co.
Day & Night Water Heater Co.
Economy Heater Co.
The Electro Weld Co.
Firestone Tire & Rubber Co.
Franklin Plumbing Supply Co.
R. E. Fraser & Co.
General Gas Furnace Co.
Geneva Heater Co.
Gewert Mfg. Co.
E. A. Hibbs
Hoffman Heater Co.
Hollywood Water Heater Co.
Hotstream Heater Co.
Hoyt Heater Co.
Edward Katzinger Co.
Lovekin Water Heater Co.
Marlow Manufacturing Co.
McCann-Harrison Co.
Merit Mfg. Co.
Walter Mork Co.
Newell Mfg. Co.
New Way Mfg. Co.
Northwestern Steel & Iron Works
Ohio Heater Co.
Geo. F. Reichman & Co.
Safety Water Heater Co.
Sands Mfg. Co.
Schwab Boiler & Machine Co
Snap-O-Stat Co.
Star Dee Water Heater Co.
Stinson Sales Co., Inc.
John Trageser Steam Copper Works
United Heater Corp.
Vernon Edler Corp.
Ward Heater Co.
Weil-McLain Co.
Weisbach Co.
D. D. Wessels & Sons Co.
Williams Foundry Machine Co.
Wise Furnace Co.

Hundreds of your customers are ready to have you convert their Coal or Oil Heating systems to Gas-fired ones.

GO AFTER THIS CONVERSION BUSINESS NOW!

Barber Burners are Standard on Leaders

"This water heater is equipped with a Barber Patented Jet Gas Burner."

When you say that about the water heaters you are selling, you will find that most of the sales resistance you encounter is at once removed.

The consumer demand for Barber Burner equipped heaters has risen to such heights that hundreds of plumbers and dealers are turning to these heaters in the knowledge that they offer a greater profit—and assure satisfied customers.

The efficiency and long, trouble-free service given by Barber Burners and the fact that consumer demand for them is so strong are two of the reasons why manufacturers using Barber Burners on their heaters is an evergrowing list of the leaders.

To Manufacturers:

The services of our engineering department and testing laboratory are at your disposal for determining the correct application of Barber Burners to any type of heating device. Write us today.

***The* CLEVELAND GAS BURNER & APPLIANCE CO.**
Burner Specialists
3702-04 Superior Avenue. Cleveland, Ohio

"Domestic Engineering" is the only business paper in the industry which publishes reviews of market conditions all over the country.

Between Ourselves

"Through co-operation and organization only can we be successful in this business." —Richard Lane of Thomas Maddock's Sons Co.

The baseball season is over, and it is not with the thought of reminding our readers of balmier days that we publish the ball park photograph on the front cover this week. The important part of the picture is the billboard maintained in the San Francisco baseball park by one of the leading merchant plumbers and heating contractors of that city. Ahlbach & Mayer advertise a great deal in their effort to gain more plumbing and heating business, and this billboard is an example of that effective advertising.

Your Editor

MANY features of the merchandising efforts put forth by Ahlbach & Mayer are of unusual interest to the plumbing and heating industry. The most unusual feature of their selling program is the effort they make to be sure that their mailing list is a list of live prospects. Mr. Ahlbach personally makes the additions to the list, assuring himself by a practical method that the names and addresses are not only correct, but that the people on the list own the property, and that they are more than likely in need of modernizing in the plumbing and heating line. The story of the merchandising campaign of this enterprising firm is called "Selective Selling." Read how they tell their story only to an audience they know is receptive.

LARGE office buildings, hotels and apartments are confronted with the problem of keeping their tenants warm regardless of outside temperatures, and, at the same time, keep the building heated as economically as possible. This sometimes is a difficult task, and calls for expensive new equipment, especially when the buildings are fairly old. One method of accomplishing both purposes is the installation of central heat control. An article in this issue tells about the central heat control system in the Oliver building in Pittsburgh. The article explains the reasons for making the changes in the heating system, and the results accomplished by the change.

THE MASTER plumber in rural districts, or in cities of such size that they are not far from rural communities, has an unusual opportunity to make a study of, and reap profits from, the business of plumbing where no water supply or sewage system is available. Many master plumbers in such localities have profited from such business and, as a result, the farm and rural home of today is a more healthful, sanitary place than it ever was before. In this issue is an article on "Sanitation in Ontario's Lumber Camps." It gives the requirements of the Canadian National Government for the sanitation of lumber camps, and contains valuable ideas for the master plumber who does rural work.

"I JUDGE you subscribe for 'Domestic Engineering.' If not, now is a good time to begin. It will be worth more to you than the cost of same. I would dislike to miss a single copy."—C. A. Bridgers, a subscriber in Raleigh, N. C., wrote the following letter to a master plumber who had written him asking information on the Bath Day movement.

IN THE San Francisco district of California, classes in merchandising have been organized for master plumbers. An authority on selling is conducting the classes, and the enthusiasm shown for the work is indicated by the large enrollment of master plumbers, which means that each gives up several hours per week to attend the classes. The master plumber and heating contractor is anxious to sell. He wants to sell. He would like to know more about selling. Men who have spent their lives in selling can be invaluable to the retailers in the industry by passing along some of their knowledge. The retailer is eager for it.

TROUBLE stories are always interesting to the plumbing and heating contractor, because he never knows when he may be confronted with the same problem handled in the story. In this issue, A. W. Barnes, well known plumbing authority of London, England, tells of one of his experiences in the days when he was a journeyman. He not only tells what the trouble was, and how it was found, but shows that it was the direct result of carelessness on the part of a journeyman at the time the installation was made. It is a practical trouble story of real interest.

THE next issue of "Domestic Engineering" will be the annual issue. As is customary, the issue will contain a number of features of particular interest, one especially interesting being a resume of merchandising activities in the plumbing and heating industry. Besides being the annual issue, the forthcoming issue will be the last of "Domestic Engineering" as a weekly publication.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe

"TOLEDO" Wishes You One and All

A Very Merry Christmas!

This Day of All Days banishes care and worry, and we give ourselves up to the joyous spirit of the Holiday Season. Users of "TOLEDO" tools will retain this cheery feeling after they are back on the job next week and for all the weeks to come, because they will place reliance and dependence on their "TOLEDOS" and know their confidence is justified.

If you are not already a "TOLEDO" user, let us send you our catalog illustrating and describing the complete "TOLEDO" line. "TOLEDO" tools have for twenty-five years been the standard for all pipe tools, and the wise men of today know that "TOLEDOS" will give perfect satisfaction.

THE TOLEDO PIPE THREADING MACHINE CO., Toledo, Ohio

New York Office, 72 Lafayette St.

DOMESTIC ENGINEERING

Vol. 125, No. 12
Whole No. 1880

The Plumbing and Heating Weekly

Chicago, Illinois
December 22, 1928

OBSERVATIONS

Merry Christmas

We are firm believers in the spirit of Christmas, but we have observed that the spirit is more active in those who have paid some attention to the practical details of living. We need only cite the case of the recent stock market break to illustrate the point. It is certain that those small speculators whose holdings were wiped out by the downward plunge of stocks will have much less to make merry over during the coming holidays.

That is an extreme case, of course. But it differs from day-to-day experience only in quantity, not in quality. We feel sure that members of our own industry who have a year of constructive effort behind them, will spend a much merrier Christmas than those who have chased the will-o'-the-wisp of volume without paying sufficient attention to the profit column.

We would heartily welcome a Christmas season, following upon a year of stupendous building activity, in which every important unit in the plumbing and heating industry could look back upon a year in which every effort had been made on the sane basis of value received for service offered. That would, indeed, be a basis upon which to build an extremely merry Christmas.

Although we may speak in what must necessarily be a prophetic rather than a historical tone, we are nevertheless sincere in wishing every reader of "Domestic Engineering" a happy and cheerful Christmas as the prelude to a new year of profitable effort.

A Complex Business

We are very well aware that there is no unchanging, universal formula of successful business management which may be set up for this industry of ours. That is why we have decried so earnestly the tendency on the part of so many to make indiscriminate statements as to the general business ability of the plumbing and heating contractor. We feel that it has had a harmful effect within the industry by arousing needless antagonism, and outside the industry by making prevalent a less favorable opinion of it.

There are too many important considerations lying back of every phase of this business for us to be able to put a finger on the one and only sore spot which is contributing to profitless endeavor. On any given job, particularly if it is a large one, there may be a number of factors at work to keep the price upon which it is let from yielding a profit to those of our industry interested in it.

But we shall not alter that condition merely by pointing out that the contractor may have gambled in his estimate of labor. It may have been altogether out of his power to make the price for, let us say, the fixtures going into the job. That may have been done by a manufacturer, or his wholesaler, in direct contact with the owners of the proposed building. Competitive conditions may have led the contractor to shave his figures very closely; the same conditions were at work in the case of the manufacturer and wholesaler, though they may have given some consideration to the possibility of covering the loss of profit on the fixtures by the profit on the other materials going into the job.

The situation is one requiring a united effort on the part of the entire industry. Certainly in view of the complexities involved, nothing is to be gained by the practice of pointing the finger of blame at any one branch of the industry. We repeat here our call in other editorials for a reasoned faith in the retail branch of the industry, and an earnest study of the conditions revealed by the recent Harvard survey in order that the industry may never again participate in a year of great activity without securing its just share of the returns which every reasonable business man recognizes as the proper reward for services performed.

Looking at the other branches of the industry will be, for any one branch, like looking in the mirror.

EXTRA BATHROOMS

As the year draws to its close, there will doubtless be those who will wonder whether the great volume of building business which the country has witnessed in recent years will continue. It is worthy of consideration, of course; but we do not believe it will be a controlling factor if the industry is alive to its opportunities. The war and post-war prosperity has caused an accumulation of capital in the country, together with a higher living standard. We believe that any falling off in new building volume can be more than made up by consistent efforts to introduce the comfort of an extra bathroom into the American home; and by the installation of radiator heat into homes already standing. These things are commensurate with our new high living standards, and with the generally increased income enjoyed by the average American family.

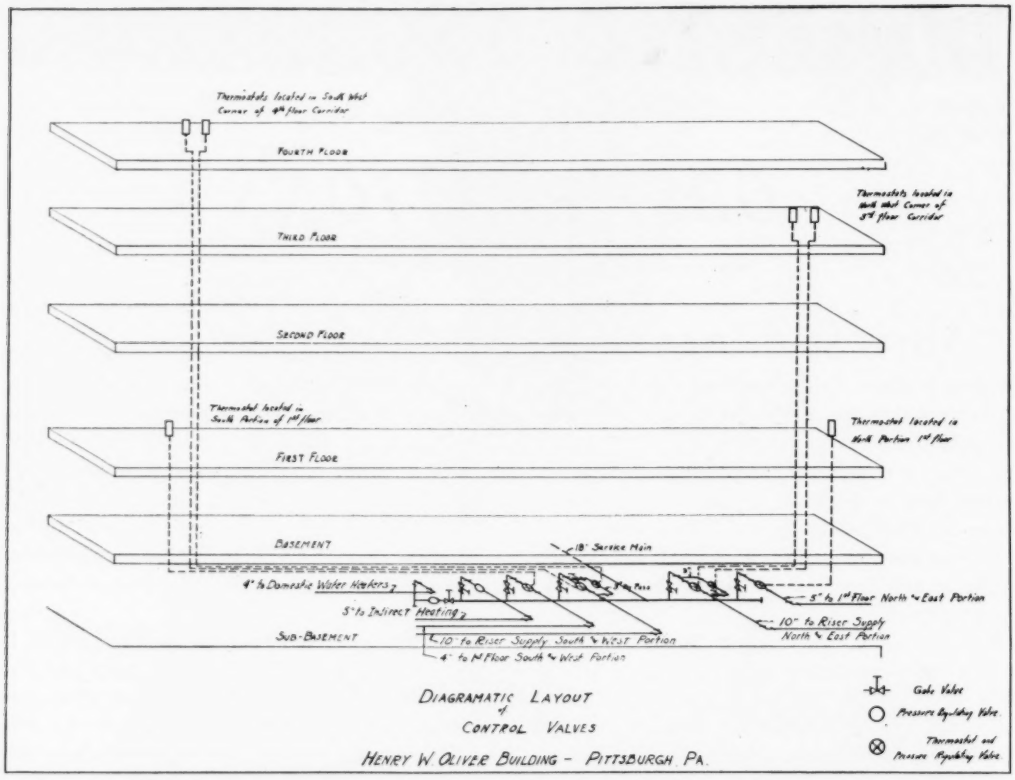

Thermostats located in South West Corner of 4th Floor Corridor
FOURTH FLOOR
Thermostats located in South West Corner of 3rd Floor Corridor
THIRD FLOOR
SECOND FLOOR
Thermostat located in South Portion of 1st Floor
Thermostat located in North Portion 1st Floor
FIRST FLOOR
BASEMENT
18" Service Main
4" to Domestic Water Heaters
5" to Indirect Heating
5" to 1st Floor North & East Portion
10" to Riser Supply North & East Portion
SUB-BASEMENT
10" to Riser Supply South & West Portion
4" to 1st Floor South & West Portion
DIAGRAMATIC LAYOUT of CONTROL VALVES
HENRY W. OLIVER BUILDING - PITTSBURGH PA.
Gate Valve
Pressure Regulating Valve
Thermostat and Pressure Regulating Valve

Fig. 1.—Diagrammatic layout of central control valve installation

Central Heat Control *in the* Oliver Building *in* Pittsburgh

By L. B. PITTOCK

THE COMPARATIVELY recent installation of central heat control in the Henry W. Oliver building, Pittsburgh, Pa., was made in order to employ several features and methods which are designed to be applied to a heating system which is already equipped with individual radiator control, as was the case in this instance. The change was made by the owners as a means of securing greater economies than those provided by individual radiator control. From these changes the following results are reported: First, the Oliver building installation demonstrates on 10-inch mains how the old bugaboo of water hammer can be avoided and still permit of quick opening of control valves. Second, it shows the method of installing small by-pass regulating valves which can supply the building with steam during mild weather and thereby reduce maintenance on the regulating valves. Third, the application of central thermostatic and pressure control brings out the fact that oftentimes the building owner desires control of the steam throughout the building during periods of moderate weather, even though radiators are under the control of tenants.

The direct heating system in the Oliver Building consists of 68,079 square feet of radiation, divided as follows: 6,790 square feet are installed in the first floor, which is supplied by two separate mains; 61,289 square feet are installed on the second to twenty-fifth floor, inclusive, this radiation being supplied by two 10-inch mains, dividing the building approximately in half. Up until September 1, 1926, the estate of Henry W. Oliver supplied exhaust steam to the building from its own power plant at a pressure of two pounds per square inch. On the latter date the management of the Henry W. Oliver building began purchasing utility steam at the service main pressure which varies from 15 to 22 pounds. During the heating season of 1926-27 no pressure regulation was provided except the throttling of gate valves which proved entirely unsatisfactory. After the latter season inquiries were sent out asking for quotations on a control system which would provide pressure regulation as well as thermostatic night control or the lowering of night temperature after all tenants were out of the building. The estate decided to install pressure and temperature central control valves which would not only give the building thermostatic night control, but which would also embody pressure regulation within the same valve. The steam-fitting was completed before the season of 1927-28, giving

the owner pressure regulation, but the wiring and erection of remote control and thermostats were not finished until February, 1928. The particular method employed in installing the central control system brought out a number of features which were not anticipated before the installation was made.

Fig. 1 shows a diagrammatic layout of the central control installation. It will be noted that an 18-inch service main supplies the building with all low pressure requirements, the steam pressure existing on this main varying from fifteen to twenty-five pounds. Each branch taken from the service header originally had been supplied with gate valves so that it was only necessary to add the central thermostatic and pressure regulating valve to the existing mains. It will also be noted in Fig. 1 that a 4-inch main is provided for heating domestic water. This main was supplied with a 4-inch regulating valve only, shown as the first branch on left of diagram. Next we have a 5-inch main supplying steam to the indirect or fresh air fan system. This also was supplied with a pressure regulating valve only. Next from the left we have a 4-inch main serving the south and west portions of first floor, the 4-inch central valve installed in same being controlled by a thermostat on the southeast corner of first floor, located on the inner partition of a broker's office. The next main, as shown on the diagram, is a 10-inch riser supply feeding the south and west portions of building from the second to twenty-fifth floors, inclusive. The thermostat which controls the central heat valve in this main is located in the fourth floor corridor at the southeast corner. Mounted immediately beside the latter thermostat is another of the same type which controls a 3-inch central valve and which is mounted in a 3-inch by-pass around the 10-inch valve. Fig. 5 shows photograph of duplicate thermostat mounting in fourth floor corridor and Fig. 6, cut of typical floor, shows location of thermostats in the fourth floor corridor for southwest portions, as well as the location of thermostats in the third floor corridor which control the north and east portions

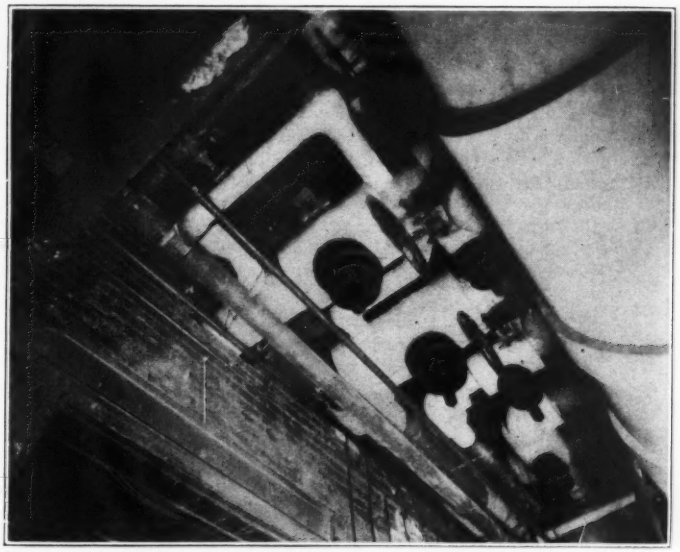


Fig. 2.—Worm's eye view of central valve in service tunnel

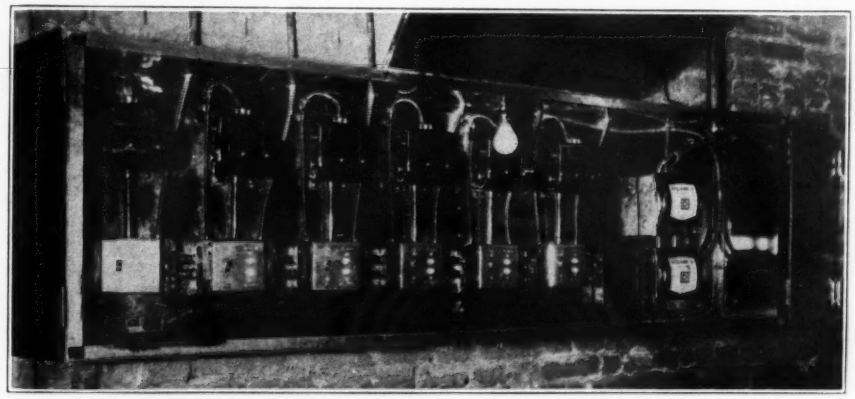


Fig. 3.—Remote control panel board in service tunnel

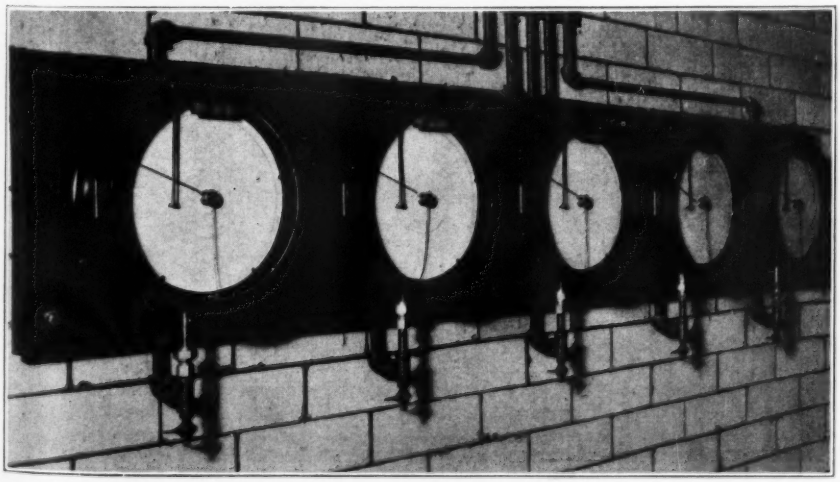


Fig. 4.—Recording gauge board in engine room

of the heating system. Other portions of the building are constructed somewhat similarly.

Fig. 6 showing typical floor plan and locations of the thermostats may be seen at the bottom of this page.

Referring again to Fig. 1, the next main is a 10-inch riser supply which heats the north and east portions of the building and the installation, including by-pass, is a duplicate of the one last mentioned. Thermostats,

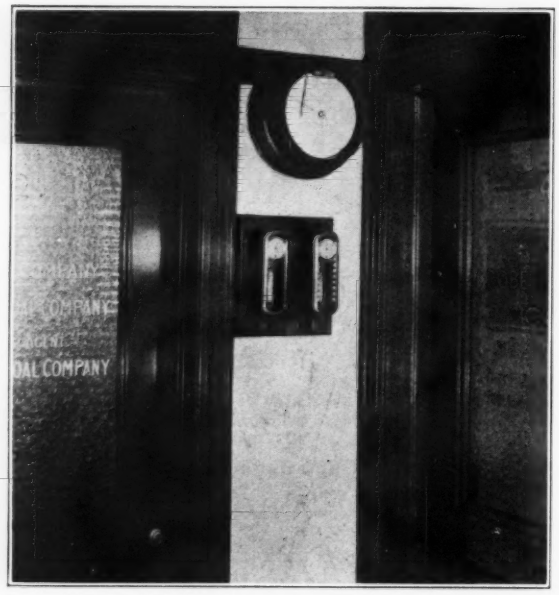


Fig. 5.—Duplicate thermostat installation

however, controlling these valves are located in the third floor corridor at the southeast corner. The last branch, as shown on diagram, is a 5-inch main supplying steam to the north and east portions of first floor. Installed in the latter is a 5-inch central heat valve which is controlled by a thermostat which is located in a room for storage on first floor on the north side of the building.

THE REMOTE CONTROL SYSTEM

REMOTE control is provided for all thermostatic or motor-driven valves so that the operator can open or close any valve at will from the floor. All valves are located immediately beneath the ceiling of service tunnel and this makes not only for operator's convenience but provides for locking open or shut any branch of the steam service. The remote control panel box is shown in Fig. 3. It will be noted that six sets of controls are provided, one for each of the thermostatic valves. On the top portion of each control is mounted motor-driven cir-

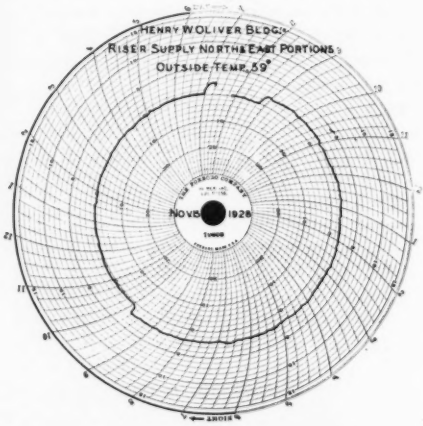


Fig. 7.—Pressure chart, for 11/15/28, north and east portions

cuit changing switch and transformer combined. In the lower portion of each set is shown service switch for each valve, together with push buttons for opening and closing the various valves. The service line is fed directly from the main switchboard so that no other electric service is taken from the circuit except the control valves.

Fig. 4 shows recording gauge board with five records mounted on same. These gauges record pressure on each branch, except that for domestic hot water heating, and give a record not only of steam pressure or vacuum but also visualize the time periods when steam is on or off

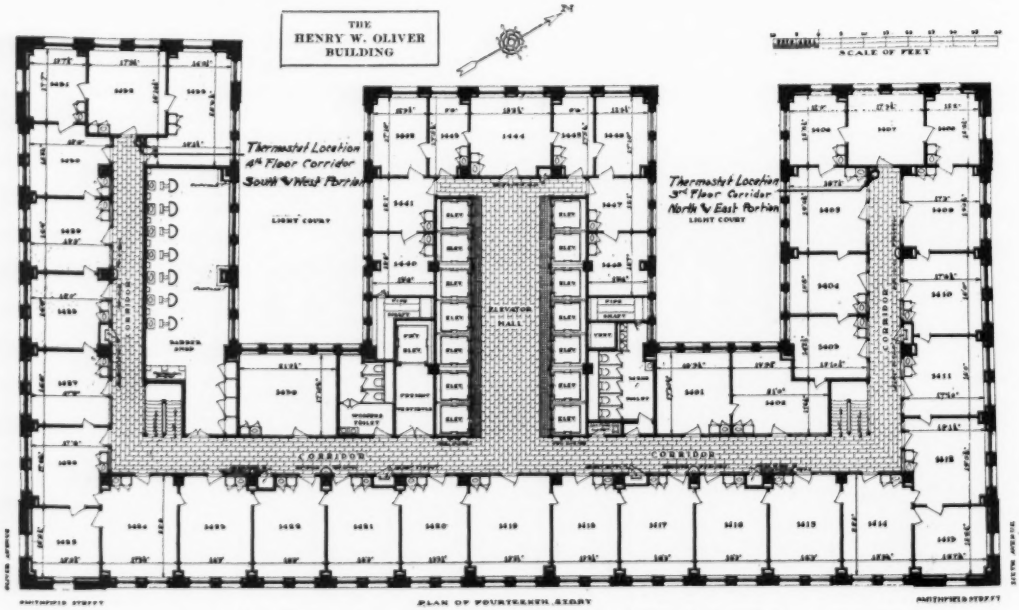

THE HENRY W. OLIVER BUILDING
SCALE OF FEET
Thermostat Location 4th Floor Corridor South & West Portion
Thermostat Location 3rd Floor Corridor North & East Portion
LIGHT COURT
ELEVATOR HALL
CORRIDOR
PLAN OF FOURTEENTH STORY

Fig. 6.—Typical floor plan, showing location of thermostats

each branch. They also record in the case of 10-inch riser supply whether the by-pass only is carrying the load or whether the 10-inch valve is supplying steam for risers. In Fig. 2 is shown a photograph of piping containing the central control valves and might be termed a "worm's eye" view of the installation. Inasmuch as the valves are mounted so close to the ceiling, no photograph could be obtained showing the worm-geared motor drive, etc., but a photo is submitted showing the piping arrangement.

It was the first intention of the owners to use the by-pass valves around the 10-inch central control valves for

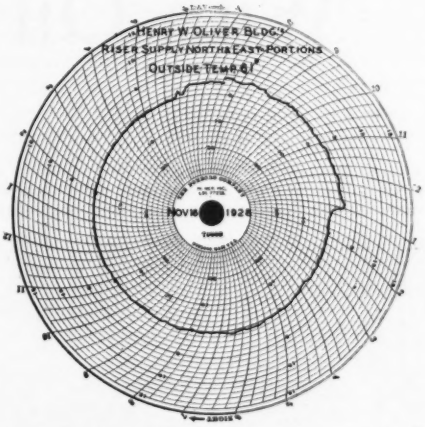


Fig. 8.—Pressure chart, for 11/16/28, north and east portions

warming up purposes in the morning before steam is admitted through the 10-inch valve. Inasmuch as the pressure setting on the 3-inch valve can be lowered to one-half pound, the amount of steam passing through same was insufficient to heat the building, but did, however, warm up the large mains so that there was no excessive or quick and harmful expansion, nor was there excessive condensate formed which the drip traps could not take care of. This eliminated water hammer. The thermostats for the small valves are set so that the latter open

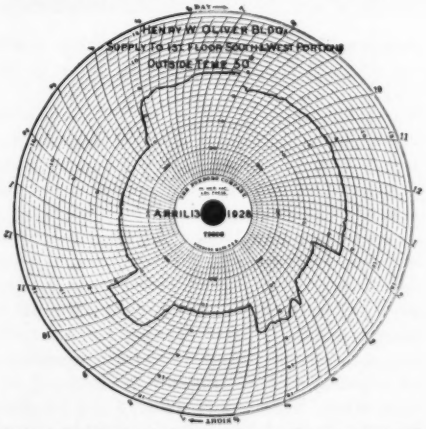


Fig. 9.—Pressure chart, for 4/13/28, south and west first floor

twenty minutes before the opening of their larger companions, and are also set one degree lower in temperature than those thermostats which control the 10-inch valves. This, of course, means that when unoccupied and at any time during the night, when the temperature of the building cools to the predetermined night setting, the small valves open first and in this way warm up the main steam lines.

SYSTEM USEFUL IN MILD WEATHER

HOWEVER, it was discovered that the 3-inch supply was just about sufficient to carry the building during the very mild weather, and to be of sufficient size to maintain a temperature in the building of approximately 65 degrees for a period of seven hours after the 10-inch valves were closed during extreme weather. The small valves therefore are used to a much greater degree than at first intended. Figs. 7 and 8 illustrate in pressure charts the savings which were effected by using small reducing valves for maintaining zero pressure with consequent lower steam temperature and at the same time keeping reducing valve maintenance at a minimum.

Fig. 7 is a record of steam vacuum conditions for November 15, 1928. The central control valves on this day were not used during the day period for control but merely as regulating valves and during the night period as night temperature control valves. The thermostats were set to lower temperatures at 10 p.m., at which time the main or 10-inch valves closed, the 3-inch valves being set to remain open. The mean outside temperature for November 15 was 59 degrees. Cooling in rooms amounted to 3 degrees in nine hours.

Fig. 8 shows steam conditions for November 16, when the mean outside temperature was 61 degrees. On this

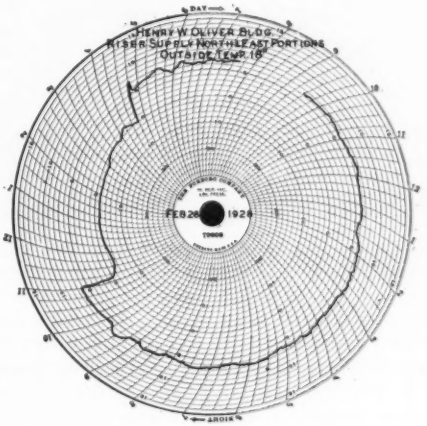


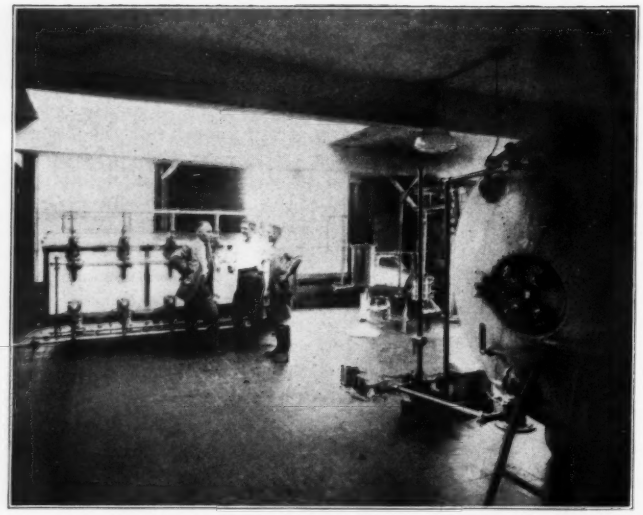
Fig. 10.—Pressure chart, for 2/26/27, north and east portions

day, however, the 10-inch central control valves were closed by means of remote control, at 1 p.m., and the 3-inch valves allowed to supply all steam from that time until 6:30 a.m., November 17. The cooling from 1 p.m. to 6:30 a.m. amounted to 3 degrees, or the same as for the preceding night period. The savings effected were, of course, in proportion to the lower steam temperature on November 16 for the period from 1 p.m. until 10 p.m.

While the central control installation was primarily intended to be used as night control, it was often found advisable during moderate weather, to place the building under central control during the daylight period, as otherwise tenants would often overheat their rooms considerably, then open windows to cool to a comfortable temperature.

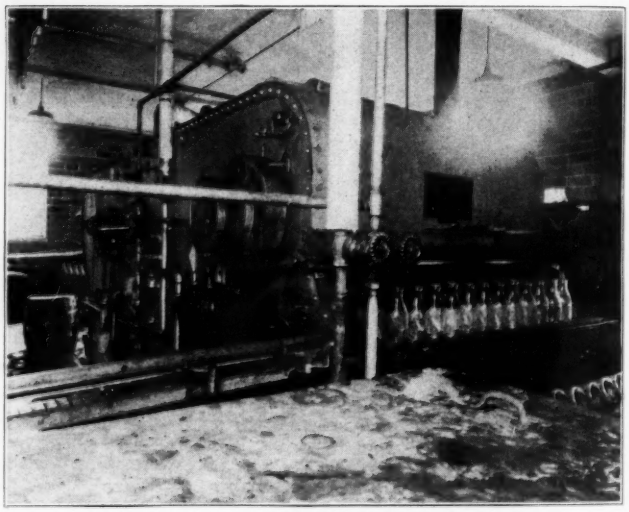
Fig. 9 illustrates very well the third point mentioned in the first paragraph. On April 13, 1928, a moderate day (mean outside temperature 50 degrees) the first floor radiation was placed under central control not only during the night period, but during the day as well. Considerable economies were, of course, effected by steam being shut off during three-hour periods illustrated when inside temperature drops but 2 degrees. In such weather

(Continued on Page 48)



Heat Modern Dairy With Oil

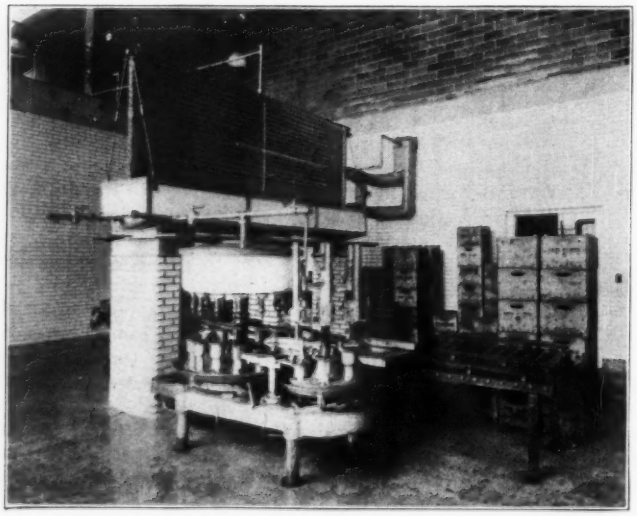
At left: Pasteurizing room, showing creamery package heater, pasteurizing machine and 4,000 gallon storage tank. Below: Bottle washer used in modern dairy



Supply Steam and Hot Water for Cleansing and Pasteurization

KUNZER-ELLINWOOD, INC., of Rochester, N. Y., operates a dairy which is known among dairy experts as one of the few real model dairies in the world. This firm is young but successful, and is rapidly growing as a result of the modern methods and policies it has put into effect.

When the new building was erected and equipped with the latest dairy machinery, a 35-horsepower, high pressure boiler, coal-fired, was installed and put into operation. Bareham & McFarland, Inc., heating engineers of Rochester, induced the owners of the dairy to install oil burning equipment.



The Kunzer-Ellinwood dairy handles an average of 4,000 quarts of milk a day, in addition to several other dairy specialties. The 35-horsepower boiler was installed in 1925, and carries an average pressure of 100 to 120 pounds of steam during working operations, which begin early in the morning and continue practically at maximum capacity until the middle of the afternoon every week day and Sundays. The boiler is fired with two oil burners, using a compressor to furnish air for building up steam pressure. After the steam pressure reaches 40 pounds, the compressor is shut off manually, then steam pressure is utilized for atomization of the oil. It is claimed that with this special set-up both high efficiency and intensified heat are obtained.

The boiler and oil-burner carry the heating, hot water and steam supply for the entire building including all the steam-consuming dairy machines. The steam radiation which heats the place

At left: Milk cooler and bottling machine in the loading room of the dairy

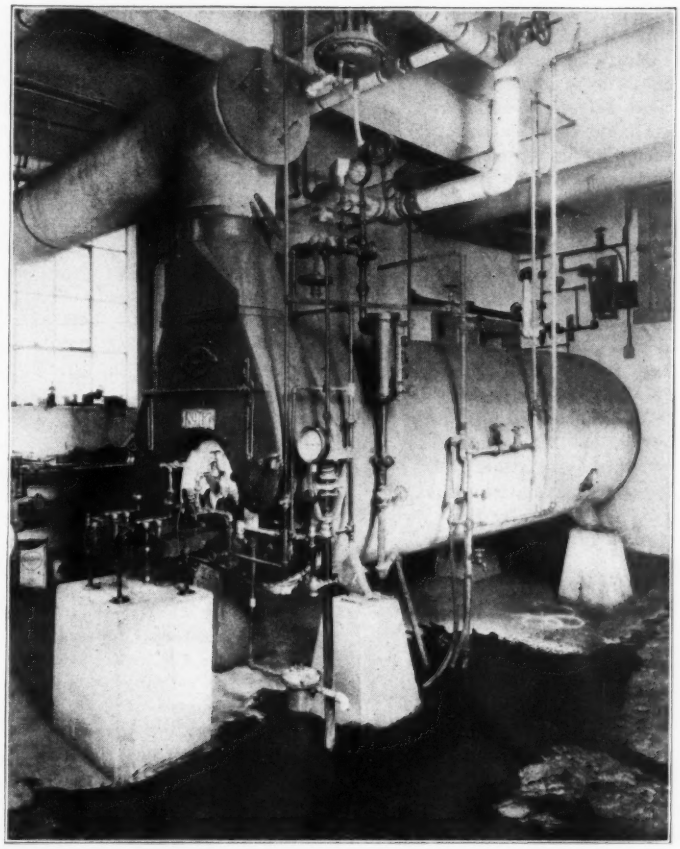
totals 1,600 square feet, heating the building, 90 by 55 by 42, to normal temperature.

Hot water, steam-heated, is carried at all times in ample volume to supply a shower bath and three sinks. The owners of the dairy pride themselves on its cleanliness and use a liberal amount of hot water and steam for cleansing daily.

The dairy equipment which employs hot water and steam consists of the following: A can washer, for which steam and hot water is supplied by a 1¼-inch steam line, sterilizing 100 forty-gallon milk cans daily; a bottle washer, steam and hot water, supplied by 1¼-inch steam line, capacity 5,000 milk bottles per day; a heater, using steam from a 1¼-inch line, capacity 6,000 pounds of milk per day; a pasteurizing machine, supplied by 1¼-inch steam line, capacity 6,000 pounds of milk per day.

In addition to these steam-consuming dairy machines, the plant is equipped with numerous other modern machines, all of which are of the latest design and of automatic type. The product is handled with the least possible manual labor, with the greatest possible speed, and the efficiency of this operation depends chiefly on the maintenance of steam at pressure sufficient to supply the varying demand.

An authentic check on fuel consumption has not as yet been made. The plant superintendent, however, estimates that the oil burner uses an average of 40 gallons of 28-degree fuel oil per day, costing $3.20 at present prices, as compared with former consumption of 575 pounds of coke, costing approximately $3.00. One man gives only a small part of his time to watching the oil burner.



Thirty-five horse power boiler with automatic oil burner equipment, which furnishes steam and hot water for dairy purposes

Commercial Refrigeration

Profitable Business *in the* Piping Trade

THE BUSINESS of the heating contractor and engineer is to produce heat and place it where it is needed. The business of the refrigeration contractor and engineer is to remove heat. Fundamentally there is no difference in these sciences. The heating man and the refrigeration man are both operators in and students of thermodynamics.

What is more logical then, than that the heating contractor should also operate in the field of refrigeration, or, if you wish, that the refrigeration expert should operate in the field of heating. They are practically one and the same field.

As a matter of fact, great numbers of heating and plumbing contractors throughout the country are taking up this new branch of the heating business. They are handling both electrical and gas refrigeration. The electric refrigeration industry has grown with astounding rapidity. Gas refrigeration is just coming into the field.

The field of refrigeration is an enormous one. (1) There is cooling as applied to air conditioning (2) large refrigeration units used, for instance, for large milk concerns, large storage warehouses, meat packing houses, refrigeration in manufacturing plants for tempering oil and water, baths, etc.; (3) smaller refrigeration units adaptable to the storage of fruit, smaller cold storage warehouses, meat markets, florist shops, groceries, restaurants, department stores, delicatessen stores, tea rooms, dairies, water cooling units for clubs, offices, lofts, factories and public places, clubs, soda fountains, hospitals, etc. There is almost an endless variety of such applications; (4) then there is multiple refrigeration in residences, hotels and apartment houses; (5) but figuring the number of units installed, the greatest number is in the small individual unit used in apartments and homes.

All of these offer business for the heating and plumbing contractor, and give some idea of the great sales and installation possibilities in the refrigeration field.

It has been customary for the makers of large industrial or air conditioning refrigeration to install their own systems. A change is coming about in this field, however, and there are many concerns that co-operate with the domestic engineer in the sale and installation of their refrigerating equipment both large and small. The smaller equipment, both gas and electric, mentioned above in items

3, 4 and 5, is now sold and installed by the heating and plumbing contractor in various parts of the country.

Multiple systems for apartment houses and residence hotels as well as the self-contained units used in apartment houses, residences, hotels and homes, have been available for some years. The multiple system is connected by pipes with a central plant in the basement of the building. At the present time, multiple refrigeration of the gas type as well as the self-contained individual gas operated units are coming into use. The sale of these devices is given an impetus by the producers of artificial gas throughout the United States.

Commercial units for butcher shops and such purposes as are indicated in item No. 3 above, are not generally available throughout the country in gas refrigeration. At least two of these commercial units should, however, be in volume production early in 1929.

These observations were inspired by the exhaustive report of the 1928 committee on refrigeration of the American Gas Association. The principal business of the members of the American Gas Association is, of course, to sell gas, and naturally they want to sell gas refrigerators as well as any other appliances that use gas.

EXCERPTS FROM REPORT OF 1928 REFRIGERATION COMMITTEE OF THE AMERICAN GAS ASSOCIATION

IN the following are excerpts selected from the report of the 1928 committee on refrigeration of the American Gas Association. These deal with types of gas refrigerators, co-operation with plumbing and heating contractors, application of some new principles of gas refrigeration and the use of gas refrigeration in the cooling of drinking water.

Gas refrigeration for national distribution first became available in the early part of 1927. This is true of both types of refrigeration for domestic use: first, the self-contained type where the refrigerating unit is built as an integral part of the box, and second, the type of refrigerating unit suitable for installation remote from the box.

The self-contained type makes possible installations in apartment houses, apartment hotels, and all places where space is an important factor. The remote type of refrigerating unit is valuable for installation in boxes of varying sizes not accommodated by standard self-contained units, and for the thousands of new and well-constructed iced refrigerators that people already own and are not willing to discard.

Advertising on gas refrigeration should cover these points: Absence of moving parts, absence of noise, low cost of operation, lack of attention necessary, nothing to wear out, nothing to replace.

The following general advantages applicable to any refrigeration system: Independence from outside ice supply, preservation of foods, constant controlled cold, health, convenience.

Sales Co-operation with Plumbing and Heating Contractors

The answer to this question depends upon the policy of the individual public utility and upon the conditions in the trade. It is unanimously agreed that co-operation is desirable, but in some instances difficult to obtain.

Where possible, the utility should stock the refrigerators and sell to the dealer-contractor at a discount that will encourage them to get out and try to sell, or at least help to sell the architect into writing the water, gas and drain openings and possibly the refrigerator into specifications for new houses and buildings.

Cooling of Drinking Water

On the cooling of drinking water, W. H. Gill, Washington Gas Light Co., Washington, D. C., said in his report:

There is a growing demand for properly cooled drinking water in all lines of industry, in offices, institutions and public buildings. Legislative enactment and the increasing desire of employees for a proper drinking supply, together with an appreciation of employers of the physical and economic advantages of furnishing a full supply of pure water to workers, have made the application of refrigeration to drinking water one of the most promising fields for small refrigerating machines.

Every office or industrial establishment that has a staff of more than ten people is a prospect for water coolers. In the past five years many water coolers have been sold—most of them cooled by ice. The tendency now, however, is to replace the inconvenient and expensive ice coolers with coolers operated by automatic mechanical cooling units that will deliver an adequate supply of pure water at a proper temperature.

As about $15,000,000 have been spent during the last three years on advertising mechanical refrigeration, the public is now fairly well acquainted with the advantages of automatic refrigeration over ice. The same advantages apply to automatic refrigeration of cooling drinking water as apply to automatic household refrigeration, and the sales field is there only waiting to be tapped.

Water cooler manufacturers have compiled some very interesting statistics on the relative quantities of water consumed by individuals under different conditions. One extremely interesting and important fact to consider in calculating requirements is that the average individual wastes as much water as he consumes.

The following table will assist in determining whether a given project will require one or more coolers, based on the number of people to be taken care of, and the average quantity of water consumed per hour per employee.

Water Cooling Requirements Used and Wasted

North Mason-Dixon Line		
Light factory service.....	0.08	gal. per hour per employe
Heavy factory service.....	0.25	gal. per hour per employe
Office service	0.125	gal. per hour per employe
School service	0.063	gal. per hour per person
Restaurant service	0.06	gal. per hour per person served during peak hour. Use peak cooler capacity
Theater service	4	gals. per hour per 1,000 seats
Cafeteria	1	gal. per 15 persons served
South Mason-Dixon Line		
Light factory service.....	0.17	gal. per hour per employe
Heavy factory service.....	0.25	gal. per hour per employe
Office service	0.125	gal. per hour per employe
School service	0.125	gal. per hour per person
Restaurant service	0.09	gal, per hour per person served during peak hour
Theater service	*6	gals. per hour per 1,000 seats
Cafeteria	1½	gals per 15 persons served

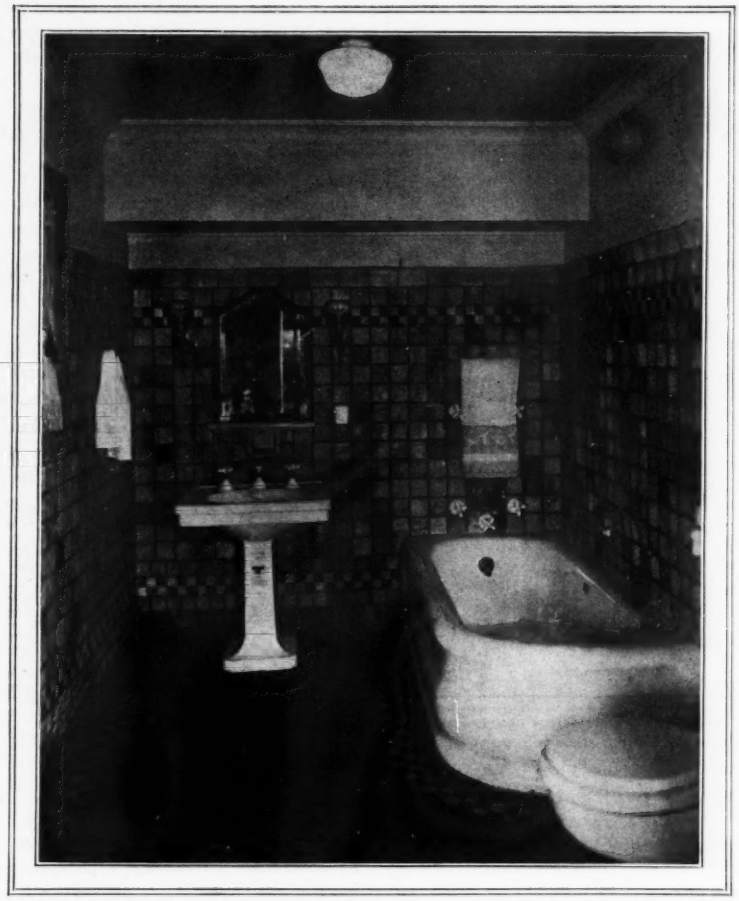
There are four types of water cooling systems:

(1) Pressure type with circulating or dead end type.
(2) Open type with circulating or dead end type.
(3) Self-contained water cooler—pressure system.
(4) Self-contained water cooler—open tank.

TYPHOID OUTBREAK AT OLEAN, N. Y., PRACTICALLY OVER

The epidemic of typhoid fever at Olean, N. Y., is apparently about over, only an occasional case now being reported. Up to October 13, three deaths and 164 cases were recorded with the State Department of Health.

The cause of the outbreak has been traced to a break in the submerged pipe running from one of the South Olean wells, an auxiliary supply, to the pumping station, which allowed raw river water to be pumped into the mains, the amount of chlorine added being insufficient to protect against this gross pollution.



Selective Selling

A San Francisco firm which doesn't try to sell everybody—it picks its prospects

By THOMAS WHITE

IN THE plumbing and heating field the temptation is to tell the whole world—so basically important is this industry. Most of us, however, would be glad of the chance to get over our message just to those in our home city. But Joseph Ahlbach, senior member of the firm of Ahlbach & Mayer, plumbing and heating contractors of San Francisco, goes one step further. He chooses his prospects. Of advertising in general, he says, "Don't try to tell everybody everything. If you do, nobody will listen to anything. Select your prospects, compile a mailing list of hand-picked names, then bear down on one theme and proceed to tell them about it. Telling is selling." These efforts are supplemented by newspaper advertising—once a week, with fresh copy each time—and a limited amount of billboard space.

The idea is sound. It is practical. What's most important is the fact that it works. It is producing business, month in and month out, year in and year out, with the result that there are no so-called business cycles for Ahlbach & Mayer—no humps nor ditches in their chart of activities over a given period. Things hum along in a uniform fashion. This is the result of intelligent "telling."

Ahlbach & Mayer's plant is situated outside the business district. Contacts other than those established through salesmen, advertising and the telephone are made largely by Mr. Ahlbach himself; in fact, he is hard to find at his office between nine and four. He may be at the Builders' Exchange or the firm's display room in the Monadnock building on Market street, or an architect, contractor or prospective home-owner may be taking his time.

THE CAMPAIGN IDEA

MR. AHLBACH finds that personal contacts are invaluable; they help to vitalize his advertising, and his advertising keeps hammering away after he has left the office or home of a prospect.

Ahlbach & Mayer's newspaper display ads are unique. Each series plays up a certain theme, a specific thought is followed up each week. Take, for example, the series run during June and July. A two-column ad three inches

One of the circulars described in the article. Three more are reproduced on this and the following page

deep appeared every Saturday in a San Francisco morning paper with a circulation of close to 175,000. The entire series featured the desirability of quiet toilets.

One advertisement commanded the attention by a single key word in bold faced type—SILENCE! Another was IT'S QUIET! A third, THEY WHISPER! Another, EMBARRASSED? This sort of advertising, done consistently and carrying the right appeal, is justifying itself continually. In the words of one of Ahlbach & Mayer's prospects, "Until I saw your ads, I never realized how noisy my toilet really was." He had one installed, too.

Mr. Ahlbach feels that there should be more newspaper advertising done among members of the industry. As it is, his firm is practically alone in the field. Their display advertising creates a certain volume of business, but if it were to be reinforced by similar efforts the results, he is certain, would net more business per advertiser than might be expected through the efforts of one firm.

"Just suppose," he said, "one-tenth of San Francisco's plumbers started advertising—or even a score of them. We would all gain immeasurably, not alone in a direct way, but in a manner that would result in arousing the public from their apathetic attitude. They would at least begin to think about bringing their sanitary equipment up to the standard of their washing machines and vacuum cleaners. We have nothing to be apologetic about. What we have to tell a large part of the public concerns them most intimately—a vital necessity that should be considered ahead of everything else in the home."

Continuous sales effort, Mr. Ahlbach believes, ultimately produces results. He is so firmly convinced of this that he is constantly putting forth greater efforts to strengthen the appeal, at the same time picking and choosing his brand new prospects more and more carefully. He has no time nor money to spend preparing and sending out ammunition that hasn't a chance of finding the target.

SELECTING PROSPECTS

FOR any sort of hunting—game or business—the best gun and the best ammunition are necessary to secure the highest percentage of direct hits. In this case, the gun is another name for the mailing-list—which is a good one. Names are added a block or more at a time, and this is the way it's done:

Mr. Ahlbach drives out to a section of the city where the homes appear to be from ten to twenty years old. He reasons that the owners should be ready to consider modernizing. Accordingly, he makes note of the streets bounding this block or section, and, armed with this information, he secures from the tax collector's office the corresponding block and lot numbers. Possessed of this data, it is a simple matter to dig up the name of the owner. So much for the gun.

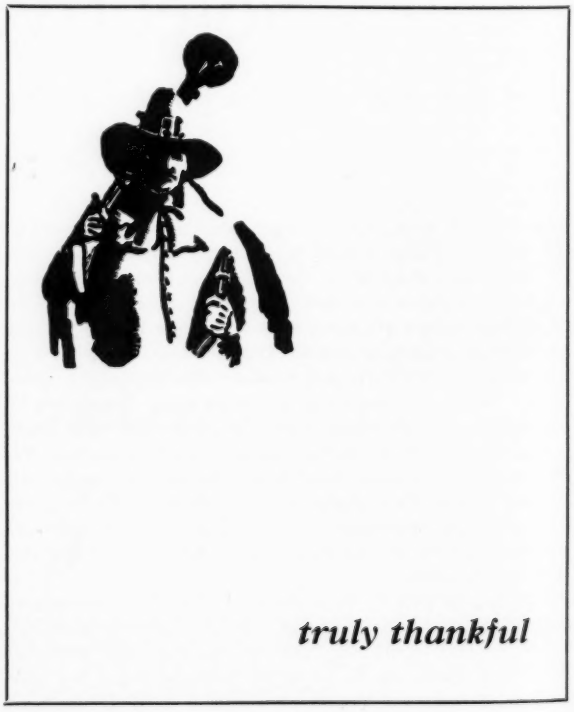
Now for the ammunition. Illustrating the manner in which Mr. Ahlbach co-ordinates the spirit of his circular letters with that of his display advertising, we will take a look at the circulars sent out at the time he ran the series of newspaper ads featuring quiet toilets.

There's an air of real distinction about these circulars—there are four of them—which carry a message that appeals to the finer sensibilities. They are printed in one color only, on heavy rag stock paper cut and folded to the size of correspondence note paper.

The front cover in each case carries an attractive pen-and-ink sketch in the upper left-hand corner setting forth the idea contained within. The sketch is supplemented in the lower right-hand corner by two or three words printed in simple italics. The order of mailing these circulars follows a very definite sequence.

The first carries the key-word "Guests" on the front. When opened, the right-hand page has this message at the top: "When friends come to visit, why embarrass them and yourself with your antiquated, noisy and perhaps insanitary bathroom equipment?" Then follows a brief sales statement, concluding with the firm's name and address.

The second is entitled "Truly thankful," and inside are



found the words, "You will be truly thankful when you have eliminated the embarrassment of that noisy and insanitary toilet," which is followed by a supplementary sales talk.

The third is labeled "An invitation," and it is just that —an invitation to visit Ahlbach & Mayer's display featuring noiseless toilets. These fixtures, by the way, are connected up, ready for demonstrating.

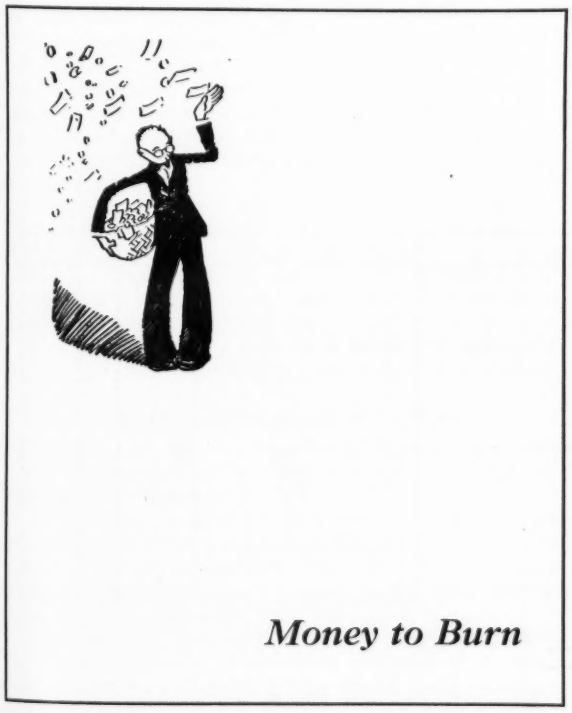
The fourth and final circular is entitled "Money to burn." Turning the page, we read, "You may have money to burn, but you don't need that much to install a silent, non-overflow, one-piece toilet in your home." It then goes on to indicate the price of the fixture, fully installed, less a five-dollar allowance for the old one.

FOLLOWING UP MAIL MATTER

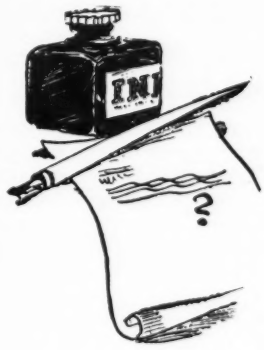
WHEN the entire circular series has been mailed, a salesman goes out on follow-up work, calling at each home on the mailing list. He takes with him an attractively prepared folder in two-color work on eggshell finish paper, which sets forth the advantages of the modern, sanitary, noiseless toilet. On the cover appears a dainty pen-and-ink sketch and the word "Refinement." The appeal is very genuine, with the delicate implication that the recipient appreciates an air of refinement about the home—anywhere, for the sake of sales argument.

"Good morning, Mrs. Blank." (Of course, he knows the woman's name.) "I'm from Ahlbach & Mayer." Instantly she recalls the circulars received in the mail. "I have something for you in which you might be interested." He hands her the folder, pointing out the merits of the new fixture and launching into his sales talk.

Does he have the door slammed in his face? He does not. The way has been paved for him. The prospect has been "told." The representative is nearly always well-received. At least, he has a chance to talk, and a good percentage of his talks yield business—some more, some less—but the total volume secured in this manner is convincing proof of the soundness of Mr. Ahlbach's method.



Money to Burn



An Invitation

Remember, there's nothing hit or miss about it, for three reasons: (1) The name of the actual owner is secured; (2) other things being equal, the house is presumably ready for modernizing, judging from its age, which has already been approximately determined by Mr. Ahlbach; and (3) the approach has been made easy for the salesman due to the character of the literature received through the mail and the connected idea running through the whole series. Back of all this is the supplemental urge of the newspaper advertising.

From time to time, Ahlbach & Mayer circularize the entire list with general literature. This has been another factor in stabilizing business volume for the firm, in addition to keeping the minds of their prospects aware of needful accessories or improvements in the bathroom and kitchen. One such circular describes "The Plumber's Part in Community Service." Another carries on the outside a typewritten circular letter about remodeling the bathroom, the inside given over to a large cut showing a modernized bath installation, and a sales argument directed to the home-owner, at the same time explaining the possibilities of the deferred payment plan. This latter, of course, is aimed at the I-can't-afford-it-now argument.

Pending the delivery of two suitable automobile chassis on which special bodies will be built, Mr. Ahlbach has evolved completely detailed plans for stocking and carrying 1,500 articles on these trucks. This material will be so arranged and labeled that it will be readily located and installed on the job with the least amount of delay. When the driver returns to the shop his first duty will be to replace the used material.

HOW TO WIN CONFIDENCE

TO HELP subdue the "overcharge" bogey which still persists in the minds of a great many, Mr. Ahlbach has evolved a plan whereby the usual complaints will be reduced to an absolute minimum. When one of his trucks

NAME ..... LOCATION .....
ADDRESS ..... Owner
NAME ..... DESCRIPTION .....
ADDRESS .....

ft. Gas Pipe ½" avg.		Forward	
ft. Gas Pipe ¾" avg.		Closets	
Gas Service		"	
ft. Water Pipe ½" or ¾"		"	
ft. " " 1"		Bath Tubs	
ft. " " 1¼"		" "	
ft. " " 1½"		" "	
ft. " " 2"		Basins	
Valves		"	
Hose Bibbs		"	
Water Service		"	
Leader Risers		Boilers	
Cast Leaders		"	
Deck Drains		Sinks	
Sewer in sidewalk		"	
Sewer in street		"	
Cesspools and connections		Slop Sinks	
ft. Stone Sewer		Wash Trays	
ft. 5" NH Sewer		" "	
ft. 4" NH Sewer		Urinals	
ft. 5" NH Sewer		Showers	
ft. 6" NH Sewer		Hoppers	
Stand Pipe		Hose Reels	
" "		Roof Tanks	
Stacks		Surge Tanks	
"		House Pump	
"		Sewage Ejector	
"		Tiling	
"			
Forward			

Fig. 1

tion, at the same time adding to the earning capacity of the driver and yielding a larger net profit for the firm, a practice in line with modern management methods.

"Net profit for the firm." That's something to think about—something forever to keep in mind. Profit is important; net profit is still more important, implying, as it does, that every item has been accounted for, including Old Man Overhead. A lot of things have to be considered before profit is arrived at. One is intelligent "telling"—publicity in various forms that creates and maintains a steady volume of business; another is estimating, and to the plumber who can estimate the cost of a job quickly **and accurately,** profit is sure to come.

"Estimating is a vital problem in the plumbing industry," says Mr. Ahlbach. "Due to present methods of intensive competition, and the lack of time allowed to take off quantities and prepare estimates, we are tempted to adopt careless methods. After completing a few jobs and finding meager profits, we look to volume, expecting thereby to increase profits. By so doing, we create sharp competition, not alone for ourselves but our competitors as well. Competition sets the price which, in turn, determines the profits—if any." The old vicious circle.

goes out to the job the driver will say to the housewife, for example, "It is now 10:15," and starts to work, noting the time on his job card. When he is through, he reports to the householder, notes the completion time in her presence, secures an O. K. and returns to the shop. A bill is then rendered, covering only the actual time spent on the premises. This will be one of Ahlbach & Mayer's indirect methods of "telling"—which helps in selling, merely by establishing confidence.

Three Story - 3 Flats

11 x 11 Enst. Toilet + Bath — Material + Labor

			List Prices		Single Discount	Net Cost 4/27/28	
110 ft	4"	Std Soil pipe			29	11	60
15 ft	2"	"			17½	2	65
3 —	4	T Y	1 15	3 45	20%	2	76
3 —	4 x 2	"	85	2 55		2	04
1 —	4"	¼ Bend	70				56
2 —	4 x 2	"	1 25	2 50		2	00
3 —	2	"	35	1 05			84
3 —	2 x 1½	T Y			50	1	50
40 ft	2	Galv pipe			22½	9	00
10 ft	1½	"			17	1	70
4 —	2	Y	4 65	18 60	70 & 5%	5	02
3 —	2	45° Ells	2 80	8 40		2	27
1 —	1½	"	1 90				46
4 —	2	Nipples	47	1 88	58%		79
7 —	1½	"	35	2 45	"	1	03
3 —	1½	Dur P Traps			42	1	26
3 —	4 x 15	Lead Bends	2 00	6 00	15%	5	10
3 —	4	Purells & Wipe Jts			68	2	04
Lead + Putty		30 4 Jts			20	6	00
						58	60
1 Plb	5 days				900	45	00
			Total			103	60

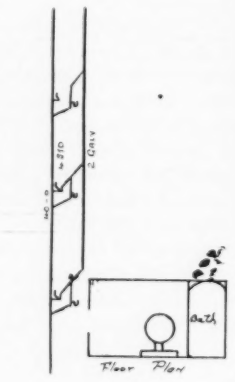


Fig. 2

AN ESTIMATING SYSTEM

THE matter of profit, then, is largely one of safe—and quick—estimating, to which must be added ample allowances for overhead and that elusive quantity known as profit. In the first place, then, there must be a system followed in the preparation of estimates in order that no vital items are omitted, and that every item is properly priced.

"Having used a system of this kind successfully for upward of twenty years," said Mr. Ahlbach before a meeting of the California Sanitation Development League, "I feel confident that many other plumbers could

Being no idealist, and ever striving for the practical—the workable plan—Mr. Ahlbach realized at the very outset that the economical operation of the service trucks, with which is involved a radical departure from the usual plan, depends almost entirely on the degree of co-operation received from the journeyman-driver. Being paid by the day, of course, it would mean nothing to the driver to save ten, fifteen or twenty minutes of the firm's time, nor to make an effort to sell an inexpensive fixture or two while out on the job.

With the idea, then, of securing the maximum of co-operation from the drivers of his firm's service trucks, Mr. Ahlbach will make of each of the traveling shop-stores a separate, profit-sharing institution as far as the driver is concerned. A certain percentage of the monthly profits accruing from the operation of each truck will be regularly credited to the man in charge, payable just before the Christmas holidays. This incentive should prove sufficient to place the quality of A. & M.'s service on a still higher plane, resulting in a still greater volume of business through the medium of customer satisfac-

4" Dry Fire Stand Pipe

4 Story 4"

			List Prices		Single Discount	Net Cost 4/27/28	
63 ft	4"	Galv pipe			73	45	99
3	4	90° Ells	2 40	7 20	73%	4	54
1	4	45° "	2 90		"	1	83
3	4 x 3	Tees	4 00	12 00	"	7	76
3	3	Nipples	1 10	3 30	58%	1	39
16	4	Threads			44	7	04
1	2	way Box Rough	32 50		5%	30	87
1	2	Roof Plate	4 00		"	3	80
5	3	Hose Gate Valves	11 00	55 00	"	52	25
Hooks + bands						4	00
Cartage						2	00
						161	29
Labor 2 days 2					13 00	26	00
						187	29
Add or deduct if more or less per foot						1	00
If rough in case deduct						12	50

Fig. 3

use it to advantage. Therefore, I will try to explain this system in detail, using actual samples of my method.

"For the standard form of estimate sheet, see Fig. 1.

"This estimate sheet can be varied to suit any location and condition, and is shown as a guide in the preparation of similar forms.

"When taking off a plan I follow down the estimate sheet, which provides for roughing in on one side and finish materials on the other. All work is taken off in units and in each case labor is included in the respective unit.

"All gas, water and sewer pipe are taken off in lineal feet and a proper allowance made for fittings, sundries and labor and is priced up per running foot installed. Fittings and labor will vary according to conditions and previous experience and records must determine these items for the estimator. In my system I use a determined percentage as a basic price and then add or deduct as conditions warrant.

A PLAN BOOK HELPS

"THE most difficult problem comes when estimating the stacks, the real plumbing connecting the fixtures from the sewer and terminating at the roof, including all branches and vents. To estimate these correctly I have worked up a plan book, containing 128 separate units, each unit drawn out in detail to show all pipe and fittings.

"From this number of units we can make up many other combinations of units, so that we have a drawing unit for almost any given condition.

"See Fig. 2 for a sample of a three-story plumbing stack to connect a toilet and bath on each floor directly over each other. You will notice that all items are priced separately, either at a net price or on a basis of list and discount. At the top of each column is the date showing when prices were computed. The last item, labor, is based on total time of getting out materials, laying out and cutting, caulking joints, measuring and cutting out vents, erecting and testing. The time is based on my judgment of a certain set of conditions.

"When taking off plans and with full knowledge of conditions, I can readily determine if my labor estimate is too high or too low on each unit and need therefore only deduct or add to the total unit cost to cover changes. If the drawings meet local conditions, the materials cannot vary and we can get our unit cost at a glance.

"The stack plans referred to above are drawn to cover standard cast iron and wrought iron installations from one to four stories high and extra heavy installations from four to six stories. We also have plans drawn showing single and double batteries of toilets and lavatories on any one floor. These plans are also used to predetermine the costs of fire standpipes for erection on a front of all buildings of four stories or more.

"See Fig. 3 for a sample of a four-story type. Our plans cover such installations from four to ten stories.

GETTING THE ESTIMATE RIGHT

"YOU will notice again how all items are priced separately and how we can add or deduct for changed conditions.

"We have now provided for the main items in the rough. All other listed items are also priced per unit with labor added. Any other items necessary but not listed on my sheet can be written on the back of the sheet and the total added to determine total cost.

"On the right side of the estimate sheet we have all our finish material. Here again our plan book comes into use, as we give each fixture one or more pages and list all items necessary for trimming the various fixtures. Labor is included according to the type of fixture. So all we need know when pricing up our sheet is the cost of each fixture and the kind of trim and at a glance we have a unit price.

"After determining the actual cost of any job, it is up to the individual to add on enough margin to cover his overhead and leave a margin of profit for the business.

"To check our estimates it is imperative that we keep accurate account of each contract, charging all material and labor and other sundry items that go on the job. In this way we can determine our actual cost and check against our estimated cost. If any great difference exists it is necessary to analyze all items so we can find the reason for the discrepancy and correct such errors on future estimates."

Realizing the importance of group as well as individual effort—that the welfare of the industry as a whole must be assured before its units can hope to prosper materially—both Mr. Ahlbach and Mr. Mayer have long been members of the San Francisco Master Plumbers' Association, Mr. Ahlbach having served his association as vice president. He is also past president of the Plumbing and Heating Club and active in the affairs of the San Francisco Builders Exchange.

As chairman of the San Francisco campaign committee, one of the bodies most actively engaged in securing financial support of the plan to bring the Plumbing and Heating Industries Bureau to the Pacific coast, Mr. Ahlbach was largely instrumental in bringing these efforts to a successful conclusion. He understands the bureau's policy to be one of "telling"—telling the world about better plumbing and heating. It was, therefore, quite logical that he should lend every effort toward furthering this policy; for Mr. Ahlbach believes implicitly that once the public is told, they are sold.

Water Supply Must Be Safeguarded

During the months of September and October there was a deficiency in rainfall of three inches in New York State, as compared with the normal for these months. As a result streams are low in many sections of the state and therefore any pollution in such water courses will be more concentrated than usual. If sudden heavy rains should occur, and they are not uncommon at this time of the year, any accumulated filth on the watersheds of public supplies may be washed into the streams or reservoirs. Under such conditions pollution may also find its way into wells unless they are thoroughly protected from the entrance of surface drainage and superficial ground water.

Frequently during droughts the regular water supply of a community is depleted to such an extent that it becomes necessary to use auxiliary sources which are often of inferior sanitary quality. Extraordinary precautions must therefore be taken to insure their purity. In order that both local and state health authorities may be notified when it becomes necessary to use such auxiliary sources, the Sanitary Code (Chapter 7, Regulation 15) requires that the official in charge of public water supplies shall notify the local health officer before such auxiliary supplies are utilized, and he must in turn notify the State Commissioner of Health by telegraph or telephone. The Department has two portable chlorination plants for use in just such emergencies. These chlorinators will be installed for municipalities in case of emergency.

Waterworks officials are advised to maintain special supervision of supplies under their authority during this period of the year and to take every precaution to insure the protection and adequate purification of all water before it is delivered to the consumer.

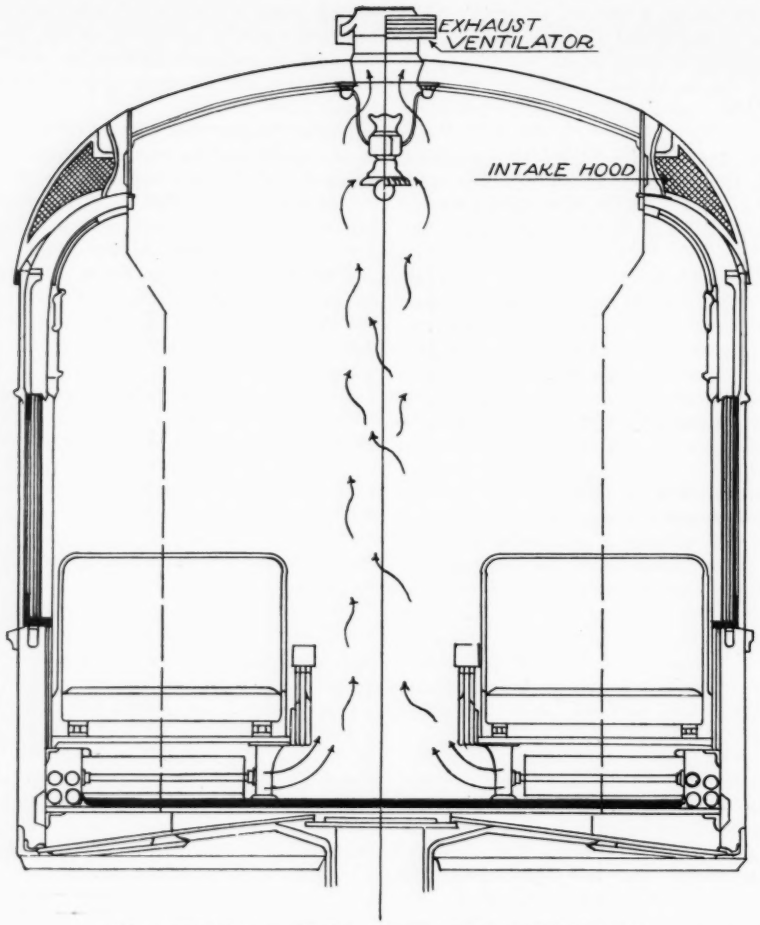


Fig. 1.—Intake ventilating system, cross section of car

Railway Passenger Car Ventilation

"HOW are passenger cars ventilated?" was the question asked a few days ago of a ventilating engineer. He did not know. "Why I thought you were a ventilating engineer," said the man who put the question, so he wrote to "Domestic Engineering" to ask someone to tell him how it was done.

The system of ventilation in most passenger cars consists of taking the air from the outside through hoods. These are located on the four corners of the roof of the car. The motion of the train causes the air to pass through down-takes to the enclosed space at the bottom of the car between the floor of the car and the false bottom as shown in Fig. 2. This space extends the full length of the car. The air then passes through the floor by means of apertures, then over the heating pipes, and then out into the car through casings located under each seat. The air finally escapes through ventilators located on the under line of the upper deck.

The flap valve in the intake hood is operated automatically by the air pressure. The ventilating system, by which the amount of air taken into the car is increased or diminished, is controlled by the exhaust ventilators in the upper deck. See Fig. 1. The combined area of the openings of the register valves in these ventilators is a little less than the area of the four intake openings. To increase the heat of the car, the register valves are partially closed.

The injecting action of the hoods is in excess of the exhausting action of the ventilators, so as to cause the warm air in the heater boxes to pass out into the car body and also prevent cold air from being drawn in around the doors and windows of the car.

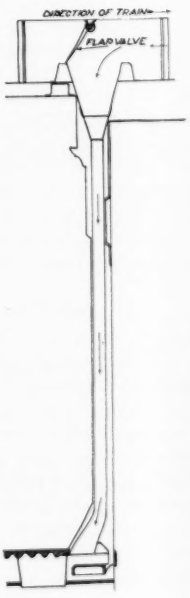


Fig. 2.—Intake ventilating system, hood and down-take

Tempering Tanks *for* Hot Water Storage

THE SKETCH Fig. 1 shows a typical installation of an automatic storage water heater, using two tanks —a tempering tank and a storage tank.

The tempering tank is exactly like the ordinary water tank found in most residences and apartments. This tempering tank is used when an automatic storage water heater is installed. It has several advantages, all of which contribute to a saving and efficiency in heating water.

Cold water coming from the street will pass into this tank and absorb heat from the surrounding room, thus becoming "tempered." When the water passes from the tempering tank to heater, it will be warmer than if it had been drawn directly from the street. Therefore it will not require as much gas to raise the water to the required temperature.

As an illustration let us say that water is coming from the street into the tempering tank, at 40 deg. F. We will assume that the heating plant is located in the basement and the temperature is 60 deg. F. As a rule it is desirable to heat water to 140 deg. F., so we will figure on raising the temperature of the water to that degree.

If we were drawing the water directly from the street we would have to raise it 100 deg., but because we pass the water first through the tempering tank—which has absorbed heat from the basement, and is about 60 deg. F., we have only to raise the temperature of the water 80 deg.

Unless the water is drawn rapidly through the tempering tank, it will in a short space of time, absorb heat until it is practically the same temperature as the basement.

This absorption process is comparatively rapid because the tempering tank is uninsulated—that is, the tank is uncovered, galvanized iron.

Because of this, heat passes quickly from the air in the room to the water inside the tank. Therefore, when the water passes from the tempering tank to the storage tank, it is already close to 60 deg., and it is only necessary to raise the temperature 80 deg., to reach the required temperature of 140 deg. These figures show that in the one case a 100 deg. rise in temperature was required (where there was no tempering tank) and in the other case (using a tempering tank) an 80 deg. rise in temperature was necessary. This would result in a saving of 20 per cent of the fuel bill.

Notice the construction of the tanks in the illustration shown here. The cold water inlets are located at the tops of the tanks, and continue down into the tanks about three-quarters of their respective lengths. In this manner the cold water is conveyed to the bottom of the tank. Sand and dirt usually found in the water, settles at the bottom of the tank, leaving clear, warm water at the top, ready to pass into the storage tank,—a very desirable arrangement.

Above the storage tank are two valves, marked A and B,—A is located on a continuation of the hot water outlet from the tempering tank. This connects with the hot water outlet from the storage tank. B is in the cold water inlet to the storage heater. When the heater is in operation, B should be open and A should be closed. With the valves in this position this is what happens:

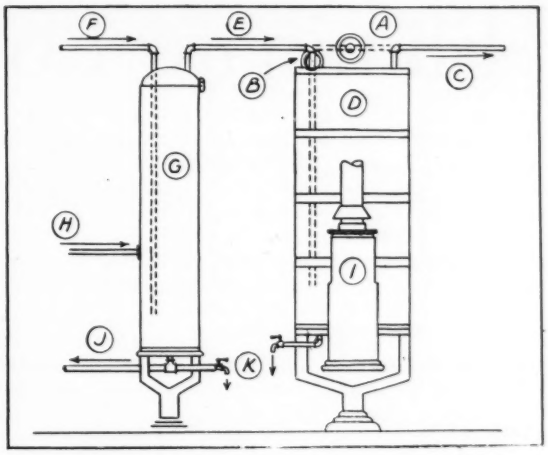


Fig. 1.—G, tempering tank; F, cold water; E, connection to storage tank; D, storage tank; I, gas-fired heater; H, connection from furnace coil; J, connection to coil; K, drain; C, supply to bath, kitchen and laundry

The water will pass from the street through the tempering tank and out of the hot water outlet of that tank.

Valve A being shut off and B open, the water will go through B and into the cold water inlet of the storage tank. From the storage tank it will pass through the hot water outlet and up to the fixtures or faucets. This affords a clear line all the way and very necessary because it is city water pressure which must force the water up to the faucets. Note the by-pass connection. This is installed so that should it be desirable to have the water pass directly from the tempering tank to the faucets, that result would be easily obtained by simply reversing the positions of the valves A and B, with the former open and the latter closed.

Some people have a furnace coil or other secondary means of heating water. A furnace coil will supply plenty of hot water during extremely cold weather while the furnace is kept going. In this instance the coil is connected directly to what we have been calling a tempering tank, but which in this case becomes a storage tank as long as the furnace coil is used. The water circulates through the coil and back to the tank. From here it goes out the hot water outlet and through A up to the faucets. This water which has been heated in the furnace coil cannot pass into the automatic heater because valve B is closed.

Another thing to consider is that dirt and sand will find its way to the bottom of the tempering tank, otherwise no tempering tank is used. Sediment frequently collects on the inside of heating surfaces, lowering efficiency and necessitating replacement of parts.

TESTING WELDERS

THE ideal method of testing a welder would be to have the test be made on full size members, but experience has shown that an excellent rating of the operator's ability may be obtained from the results of tests made on specimens from a weld made between two pipes of the same material and thickness as is to be used in service. Upon completion of such welds the test piece is divided into specimens of convenient size for testing.

An approximate rating of a welder's ability may be obtained by the very simple test of bending a welded specimen held in a vise by blows from a hammer. The angle of bending and type of fracture furnishes an excellent index as to the operator's qualifications if the tests are properly carried out.

Eliminate Loose Leaf Credit

Business volume should be co-ordinated with credit responsibility

By W. H. STANTON

THERE is a very small percentage of manufacturers and dealers in the plumbing materials manufacturing or jobbing business today, who could show their books without turning up a very unsatisfactory condition of their Accounts Receivable. In almost every instance a check-up would show an abnormal amount of good money tied up in "frozen" assets in the form of open accounts dating back more than ninety days. Ask any one of them for the cause, and they will invariably say they can't get their money out of the master plumber. If it wasn't for those who discount or pay in thirty days they would have to go out of business. The consensus of opinion is that the plumber is a poor business manager, doesn't keep after collections, and gets tied up on "slow pay" jobs etc., and the average jobber will finish by saying it's all the plumber's fault.

Is it altogether the plumber's fault? Is he to be blamed if he learns through those who sell him merchandise, that it is easy to get credit, easy to drag out the payment of a matured obligation. A survey of any group of master plumbers in any section would show the greatest majority of them to be honest at heart. Pick a hundred of those who have been in business for ten years and never free from debt and questioning them, they'll tell you they don't want to owe money, they want to square up; in fact, the most of them are looking forward to the time when they can look every man in the eye and say "I've got money in the bank and I'm obligated to no one."

What keeps them in debt? Who encourages it? Principally manufacturers and jobbers. How are they to blame? They are responsible for that condition because of the mad scramble to find an outlet for their stock in their warehouses. Suppose we get a picture together of just how this has all come about and we will find the plumber the willing accessory and consequently guilty after the fact of his share in this poor practice of good financial and business management. But the origin of this practice is most frequently traceable to some supply house who has created the temptation of liberal credit, credit without foundation or material backing, other than faith in the moral character of the plumber.

Suppose there were four new jobs being offered for bids. One for $5,000, one for $20,000, one for $50,000 and one for $100,000. Suppose there were six plumbers figuring all those jobs collectively. One plumber has $2,000 in the bank, and no other assets; another $2,000 in the bank and $10,000 in good tangible assets; another a good line of bank credit, $15,000 in the bank and some real estate and other assets. The fourth is a contractor of more or less reputation, well set financially; shows a good statement and credit with two or three banks. But the last two have a check book with no balances, no shop, operating from their homes or a basement of some sort. Now these are the types of business men figuring those four jobs totalling $175,000. The first plumber with $2,000 and no assets is honest but ambitious, so is the second but he is a bit better manager than the first, because he has built up for himself a line of bank credit and accumulated other assets beside his cash in the bank. The third is honest, too, and ambitious but cautious because he has put part of his assets in what he can't easily lose—real estate. The fourth is a seasoned, died in the wool, contracting plumber who knows his financial as well as his practical end of the business. But the remaining fifth and sixth have neither cash, assets, nor reputation for doing new work on a large, contracting scale.

And, don't forget the builder. He will almost always welcome a bid from any one, if only to use it as a club on another when he finds a particularly low estimate in the lot filed with him. He is the one who first starts the ball of competition rolling by playing one contractor against the other.

Now there are also three supply houses figuring those jobs for every one of those plumbers. Nobody pays any attention to credits or anything else but figures, sharpening pencils, burning night oil while cutting corners to see who can get that list down to the rock bottom figure in order to be assured of winning the material contract. By this time everybody is on the scratch line. Jobbers and plumbers, set and ready to go at the crack of the pistol, with a complaisant builder for a grand stand audience of one, bets laid on one or both of two dark horses. He made that race, he placed the contestants and picked the winner of the first heat because he knew his weakness would win him the race; and that winner of the first heat is one of the two plumbers who have all to win and nothing to lose except, possibly, a good name.

They start. The supply men in the lead. They begin guessing who is likely to get the job; they know all those figuring and start off laying down the same figure to the first, second and third men; but the fourth is a big fellow and must have more care given to him because he has his "rep" as a shrewd buyer. And so all three houses figure closely on the material for that one big fellow. The fifth and sixth are only small fry and they figure a bit higher to them than any of the others.

Now while the supply men are scrapping and scratching to find out how they stand among themselves, the plumbers are each doing all in their power to keep them on the keen edge of competition in order that each one of them get from one of the three houses the lowest figure they can reach. All this time Mr. Builder is taking life easy, waiting until the race is over and ready for him to collect his bet. Soon the supply men are going from one to the other trying to find out how each one stands, which plumber can give him the best dope on the situation; each shades prices a little more if he can, and then one of them has a bright thought. Everyone else is following the first four plumbers closely and nobody paying any attention to the two little fellows who are still in the race. He looks them up and learns that the

builder has told one of them that he is low man but he isn't closing the contract yet. Then the supply man and the plumber with no capital get together and the supply man forgets all about credit risks, the plumber doesn't care because he can't lose anyway. They sit down and plan to win those jobs on the low price.

It is inconceivable how that little fellow got half of those contracts and the big fellow who could carry them got none and the others got the other half. But as we get further into the picture there isn't so much mystery about it.

The big fellow knows his overhead and figured it in his estimate. He knows through experience the slips and hitches in labor on a big job and has his percentage of labor allowance for contingencies added also. Then he puts his legitimate profits on last. That's why he lost. The little fellow said: "I have no shop or office rent, I can work myself, no overhead," and he practically figured actual cost of material, actual estimated labor time and doubtless, ultra conservatively; then added ten per cent for his profits. Maybe he didn't even figure his own time at all, believing he'd get his pay from his profit.

Now here is a man with no money going to handle $75,000 worth of contracts. Because the builder finding him so very much under the others, gives him the contract. If he is careful, the builder can't lose. The other contractors were between the high and low men perhaps, and they're out of the race.

The three jobbers now are scratching figures to get the material contract and after cutting all corners and possibly one awarded the job by the plumber, he might turn it down because he sees that the plumber is not financially able to carry the job. But of the three will be one, who, because his warehouse is full of stock, or maybe his salesman is over-anxious for volume, is willing to take a chance. Or, maybe he goes to the builder and gets a guarantee for part or all of the contract. If he gets a guarantee and that guarantee ties up all of the material money in the contract, there is nothing left for the plumber but the labor money and profit to take care of extras. And if the labor runs over the estimated time which it usually does, with those who have not had great experience in new work, then the plumber is stuck and can't finish his job for lack of funds.

If the supply house takes a chance, then when the plumber finishes the job at a loss, the supply house holds the bag because the plumber in the course of construction has had to use his material money to pay his labor. If the builder gives the plumber notes in payment, the plumber passes them on to the supply house in payment for material bills; and when the notes come due the builder doesn't meet them (and it happens often), the plumber can't take them up, so the supply house meets the notes and takes renewals. The supply house made the bag, so let them hold it and so we find a plumber with his credit ruined, a supply house with several thousand dollars tied up in notes that they wonder when they will be paid and the master plumber or plumbers financially able to carry the job, with a line of bank credit where they could discount the builder's paper, pay the supply house on a two per cent discount basis, lost the job because they figured what they knew the job would cost, refused to bid without a legitimate profit.

No doubt the plumber was in error to try to handle that volume of business. But he never would if some supply house hadn't encouraged him with their promise of financial or credit backing. Having backed him and lost, the supply house has no kick coming. They knew from the range of figures out that the small plumber was too low to be able to break even on the job. They knew he had no money or tangible assets from which to realize money; but they wanted the order.

The supply houses would have done better to help those several plumbers into winning the jobs that rated with their respective financial strength.

The first man could have swung the $5,000 job, the second the $20,000, the third the $50,000 and the fourth would have landed the $100,000 job and that is where each one of those contracts would have paid everyone a profit.

The two plumbers without bank credit or assets were not financially entitled to even figure those jobs any more than the first, second, or third should have tried to figure the $100,000 job. Those two small plumbers without capital should confine their efforts to overhauling and repair work until they get in better financial position, and it is the obligation and duty of the supply house to keep their credit limited to that character of operation.

There is nothing wrong with the plumbing industry today but what can be remedied by a few radical changes that would be beneficial to the plumber as well as the sources of material supply. Plumbers, if they are only moderately good business men, can discount their bills if they quit biting off more than they can chew. Use common sense and don't let flattery mislead them into the belief that they belong in a higher financial class than they truly know their rating to be. Just because some salesman, hungry for the order, or builder using them as bait, tells them he will back them, doesn't qualify their fiancial ability when something goes wrong, they can't collect or have to take notes.

It is not the question of one plumber or one supply house or manufacturer getting more business than another that is the error of existing conditions. It is failure on the part of the plumber to handle jobs he can finance on his own responsibility, carry payrolls he can meet without taking from his contract money set aside to pay for material and using it to pay labor.

It is not that one supply house should complain because another wins the contract; or be so over-anxious for business that it assumes unsound risks in backing irresponsible contractors. These conditions continued will not balance trade volume. The important factor is in directing the component parts of that volume into proper channels. And that direction of trade volume has a right starting point. A basic point of proper credit classification. By a mutual comprehension of their respective classes of financial worth, the master plumber and the supply house would not do any less volume; but by proper assimilation of the size of contracts with the master plumbers equal to carrying the load, the distribution of those contracts would produce less unfair competition, more profits and the volume remain undiminished.

By this method, every class of master plumber would

This is the third of the series of articles written by Mr. Stanton expressly for "Domestic Engineering." Drawing upon a wide experience in the industry, Mr. Stanton has some pointed things to say concerning trade practices which have contributed to the "profitless era." He has also some effective remedies to suggest—which gives this series of articles a constructive value and lifts it far out of the class of the merely critical writing.

be happier in the enjoyment of a free mind, a comfortable balance in the bank, good credit and the esteem of the supply houses. The latter would soon eliminate pyramided receivables and slow accounts.

There is no organized effort necessary to accomplish this. In fact, organized action in a cause of this sort would most likely fail. Individual action on the part of the master plumber and supply house must come from each one, not collectively. Every plumber and each supply house must determine to check up the bank balance and satisfy themselves individually that the contract in hand is not so big that someone is going to hold the bag before the job is finished. If there is any bag to be held and it is not the builder, it should not be the supply house. It is the plumber's responsibility as contractor and he must be strong enough to do it on his own responsibility.

If supply houses refused to accept the builder's notes and trade acceptances passed on by the plumber, the latter would quickly get out of the rut because having no bank credit and supply houses refusing them, the notes would hold no value, consequently he wouldn't accept them.

This is what is wrong with the trade balance today. It has developed unethical business tactics, turned co-ordination into disorganization. Created suspicion and distrust where confidence should reign supreme.

One very important side of the trade situation, as it is today, has been overlooked. There are too many supply houses and master plumbers neglecting other sources of business development, in their mad scramble after new work. Overhauling and remodelling offers opportunity of great profit and worth to the master plumber who will study it, systematize it and build a reputation as a master of this character of work. For the master plumber of limited capital, the contracts in this line do not run into big figures beyond his ability to finance and discount his bills.

In the rush after new business the still smaller master plumber, lacking capital, has turned his back on jobbing and repair work. Again, this type of plumbing business has been systematically gone after by many members of the trade, consistently and studiously followed up to the point where there are not a few who wouldn't handle a new job on a competition basis, because the competency of their income from an established repair business enables them to decline new work contracts unless strictly on their own terms.

It is the master plumber of lesser financial responsibility, who has struggled to get into new work that is the one the jobber should be most careful of; not to lead him consciously or unconsciously into over-estimating his ability. It is far better to take the time to show that individual where and how to make more money out of his repair business.

Study his location, store and window display conditions; show him how to improve his merchandising. Give him assistance by going with him and helping him land his overhauling job. Or, in private house work, show him how to turn a washer job into a complete bathroom renovation; or how to sell an electric washing machine. And in the small cash sales of drainboard mats, garden hose, waste pipe cleaner, together with a multitude of other things, including a swinging spout faucet to replace the old fashioned sink bibb, help him create a Woolworth business out of the unlimited field of opportunity within his financial reach. The supply house will profit in all of this. The one who helps this type of master plumber into this channel will profit through grateful reciprocity. The master plumber, who needs this help, benefitting by it, will not forget the one who helped build it.

By these methods the segregation of classified credits will become a reality; bad competition minimized to the point where the financially careless plumber and jobber will soon be in a class by themselves, the various rated plumbers find the competition in their respective classes limited to a narrowed field, and the figuring of estimates working with wider margins of profit.

The supply houses in supporting a plan of this kind will quickly discern the development of greater selectivity in business classification; and in their own respective classes find the character of prices changing for the better through that greater concentration of effort in a more closely allied system of contact with the trade.

Jobbers and master plumbers alike, judge your limitations by your credit responsibility. Take the man or concern you do business with and not the size of the contract, as your basis for credit; be governed accordingly and you will have discovered the dawn of a new and prosperous development in the plumbing and heating industry.

When President-elect Hoover, in his speech of October 22nd in referring to the great industries of national development, found time in his thoughts, to remember and speak of the plumbing industry as one of those that had, through progressive sanitation, protected the health of the nation, he established right then a sound reason why the industry should be fairly and honestly compensated for its service to the greatest nation of people in the world.

And while all this should be, it can be, true if each one for himself learns to be content to remain in his own class and position in business until his experience and development warrants his progress into a higher grade.

WELDING JOBS IN THE PLUMBING AND HEATING SHOP

It is of course a debatable question whether a plumbing and heating contractor should undertake work outside of his chosen field, but the fact is that the contractor who does pipe welding frequently has thrust upon him jobs that have nothing to do with plumbing and heating. There are many piping jobs to which welding is adaptable which have no relation to these two industries.

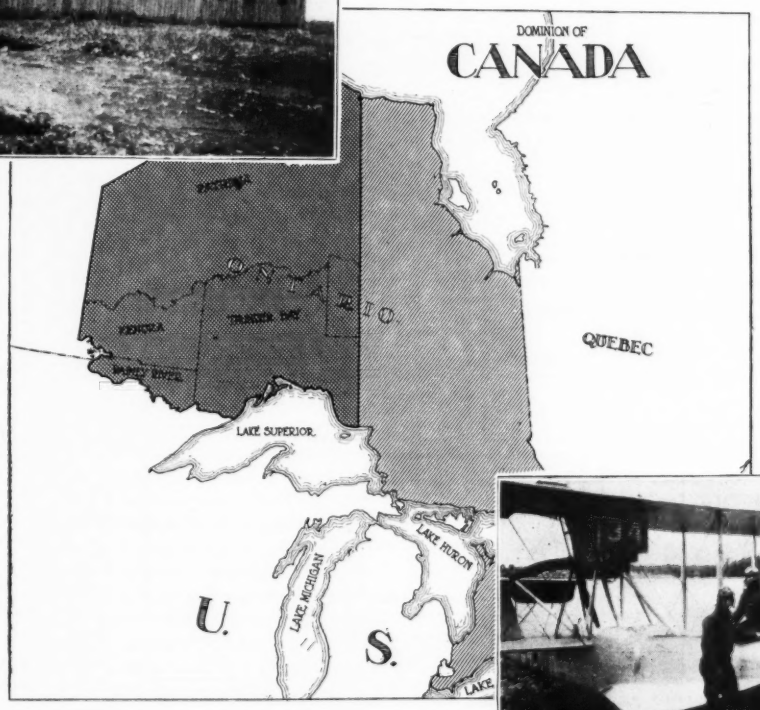
Below are listed several applications of welding outside of the plumbing and heating fields. These were taken from letters from plumbing and heating contractors who have made a profit from these uses of welding and brazing:

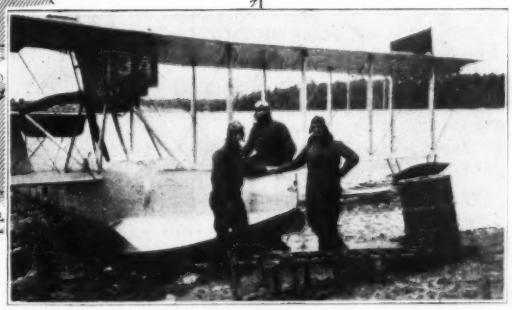
Making benches, beds, umbrella stands, hat racks, porch swings, filing cabinets, typewriter stands, blue print files, pipe racks, operating tables, water tanks, window display stands, as well as repairing of these and a great variety of other devices.

View of the new salesroom of Murray W. Sales & Co. in Detroit

Top: A typical bunk house exterior. The map shows by shaded areas where effective sanitary inspection is maintained

Below: Inspectors carry on their work by aeroplane





Sanitation in Ontario's Lumber Camps

By WILLIAM C. MILLAR
Ontario Provincial Plumbing Inspector

TIME was when the suggestion that sanitary conditions in lumber camps should be studied would have brought the utmost derision upon the head of the suggester. The lumberjack could stand anything—he was never sick. Why coddle him? That was the general idea. Admittedly, a sick lumberjack was seldom seen in the woods because of the system of shipping sick men to town where they were left to live or die, depending upon the conditions of their bodies and their purses. They could easily be replaced by their able bodied fellow men.

Undoubtedly, a heavy toll of human lives was taken two decades ago in the lumber camps of Canada through disease, mainly caused by insanitary conditions. Statistics gathered by the Ontario government fifteen years ago showed that, each year, hundreds of cases of smallpox, typhoid fever, pneumonia and other diseases developed in the lumber camps, with a large percentage of deaths.

Records compiled two years ago showed that the cases of the above diseases which had developed the year before, could be counted on the fingers of one's hands. Undoubtedly, the regulations drawn up by the Canadian government of Ontario, for the sanitary control of lumber camps, is responsible for the wonderful health improvement shown two years ago.

To enforce those regulations, sanitary inspectors for the Thunder Bay, Sault Ste Marie, Sudbury, Cochrane and North Bay Districts were appointed, with a chief inspector over all, at Toronto. Those regulations covered the disposal of camp sewage, supply of wash basins, laundries, bath houses, ventilation and also the water supplies.

The old-time lumberjack had a bath when he left town for the woods in September and his next when he came out the following spring. By the new regulations, all camps are compelled to supply bathing and laundry facilities, so that the lumberjack can now have a bath at any time he chooses. Also, the sewage must be run into a cesspool at a point where there is no possibility of polluting the water supply.

The water supply in most of the up-to-date camps is now pumped by a small motor from a river or lake. This motor is also used for generating power for electric light-

ing, and sometimes for running a wood-cutting machine.

Some Lumber Camp Sanitary Regulations

The regulations covering wash-rooms state that there must be one wash-basin for every five men in camp.

The laundry regulation states, "If a public laundry, satisfactory to the provincial board of health is not available, a laundry building is to be provided, as shown in the plan. (See Fig. 1.) The laundry shall contain a built-in boiler, with laundry tubs."

Ventilation Regulations

One of the most important regulations made by the Ontario government covers ventilation. In the past, the camps were built as nearly air tight as possible in order to keep out the cold, which is very extreme, the thermometer often dropping to around 40 degrees below the zero mark. The natural consequence of this lack of ventilation was a heavy toll of deaths each winter from tuberculosis, pneumonia and other pulmonary diseases. The ventilation regulation reads, "There shall be two roof ventilators placed as shown in plans. These shall have openings of at least six inches, equipped so that they may be opened and closed by a pull cord. Fresh air inlets are to be constructed as shown in plan."

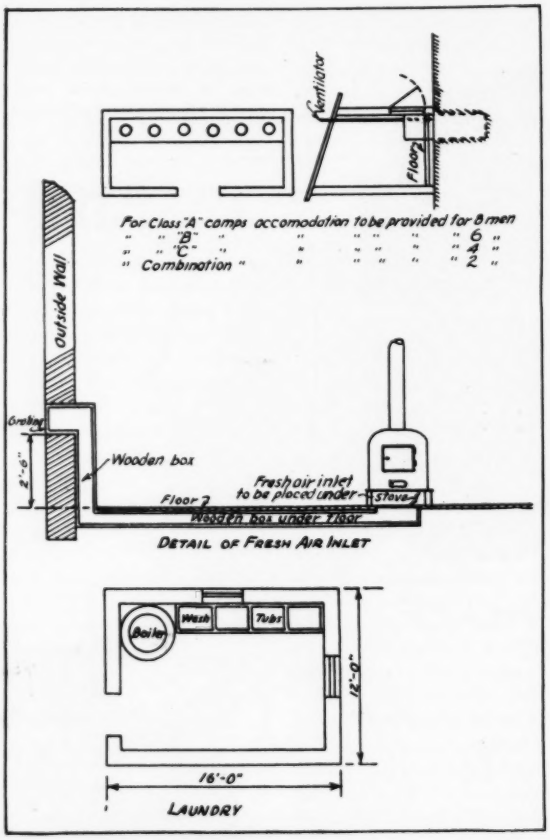
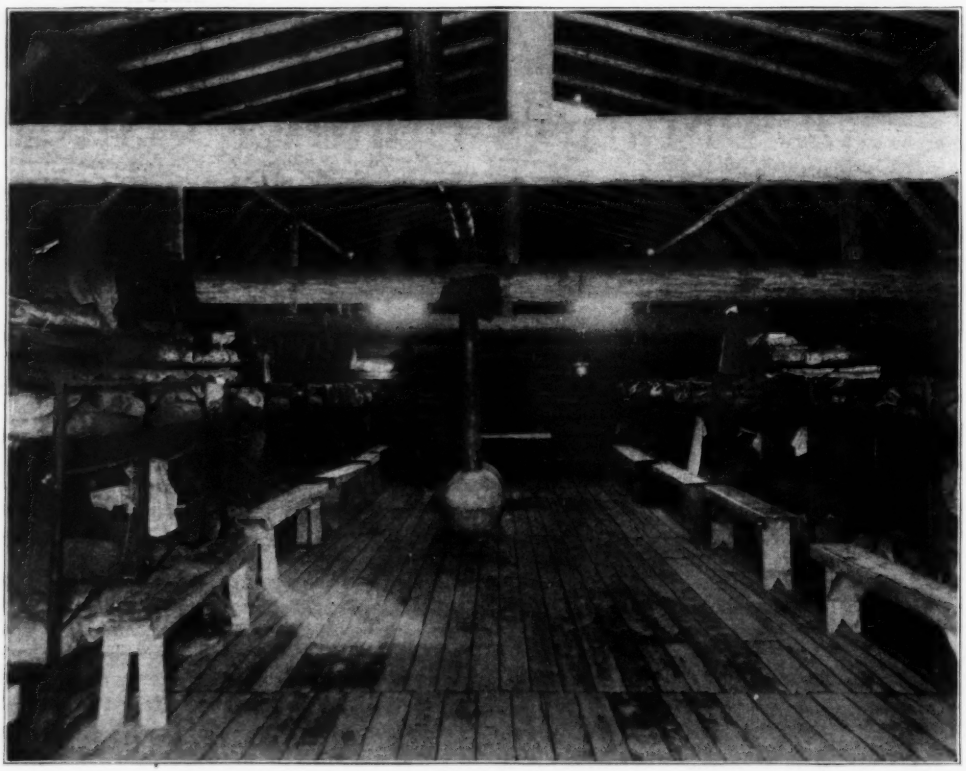


Fig. 1.—Typical heating, ventilating and sanitary facilities in Ontario lumber camps

This system of ventilation is simple but very efficient. As shown in plan, the fresh air inlet is brought in from outside, the outlet finishing below the barrel-stove which is to be found in every lumber camp. The action is simple, the icy air emitted from this vent warms up as soon as it reaches floor level and circulates toward the roof ventilators which are built in each end of the camp. This gives a circulation of warm, pure air. At the end of each barrel-stove, an open boiler is hooked up to a coil inside the stove; this provides warm water for washing as well as for supplying the necessary humidity. So that, in spite of the crudeness of this system, four essentials for good ventilation, viz; circulation, temperature, humidity and motion are provided.



A typical bunk house in a lumber camp

Some Plumbing Troubles

A Very Wet Vent Job

By A. W. BARNES

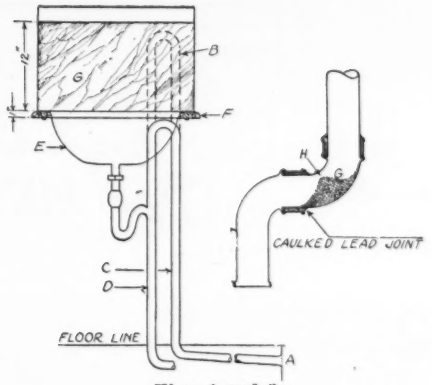
THERE are occasions in the life of every business man when the terms business and worry seem to be synonymous; this is particularly true in the case of those men who employ labor on an extensive scale. But master plumbers and heating contractors are more frequently subjected to worry than are employers who are connected with various other trades engaged in the building industry. The reason for this state of affairs is not difficult to ascertain. If, for example, the joints or finished surface of some woodwork or plastering are not quite what they should be, the application of some stopping, followed by a rubbing with glass paper, will often achieve satisfactory results. Faulty work by the bricklayer, the carpenter, the plasterer, the painter and various other craftsmen may be very unsatisfactory without being attended by any serious results, but let there be anything wrong with the work of the plumber, or the hot water and steamfitter, and an apartment may be flooded, or one or more ceilings may be soaked with water or washed down. The highly skilled, thoughtful, careful, conscientious, willing, and quick workman is one who makes glad the life of an employer, but a workman in whom these qualities are lacking may soon cause an employer to lose reputation, money and customers.

Of all undesirable workmen, the careless one is the most undesirable of them all. When careless workmen leave a job, they leave behind them for the unfortunate employer a sequence of troubles and complaints. Unfortunately a careless workman may sometimes possess a fair amount of skill which, for a time, serves to cover up his lack of care. Workmen of this type are indeed dangerous, because their work may appear to be quite satisfactory on the surface, when the more important and hidden portions are a blend of all that is unsatisfactory and defective. Beware of the workman who is slipshod and careless, but is not altogether a duffer. He is a man to avoid, and a master who has the misfortune to have men of this type in his employ, will soon find that the customers' names in his books are becoming less in number, and that his credit balance at the bank is dwindling also.

CARELESS WORKMAN CAUSED THE TROUBLE

DURING my early years as a journeyman plumber, I had an experience, the result of a workman's carelessness, which left a lasting impression upon my mind, and caused me to realize that a foreman, until he knows the workmen thoroughly, should never take anything for granted, but should make certain that each man is doing really satisfactory work. I happened to be working on a large office building in the city of London. I was fixing a stack of 4-in. lead soil pipe, with 2-in. trap vent pipes, also of lead, connected to it. Nearby, another plumber was fixing a stack of 2-in. cast iron waste pipes having caulked lead joints between the spigots and hubs. The plumber referred to was one whose work, to all outward appearances, was first class. I watched him pour the molten lead into a hub and said to myself, "There'll be trouble in connection with that stack later on; sufficient lead has been poured into that one hub to make four such joints." Eventually the job was completed, and for a few months all seemed well; then the trouble began, or rather a series of troubles began.

The owners of the buildings were British Jews who were millionaire merchants, controlling vast interests in one of the most prosperous of the British colonies. The buildings consisted of sub-basement, basement, ground floor and five additional floors. The offices of the millionaire owners took up the whole of the first floor, the only sanitary fittings installed on that floor being one valve W. C., of modern type, and one lavatory basin, these being in separate apartments,—it being necessary to pass through the lavatory apartment in order to reach the W. C. which, to conform with the sanitary by-laws, had to be fixed next to the outside wall. Each of these fittings had its own separate stack of soil or waste pipe, no other fittings whatever being connected to them. The length of each



Figs. 1 and 3

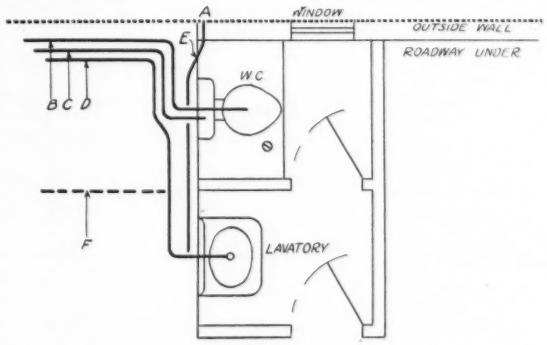


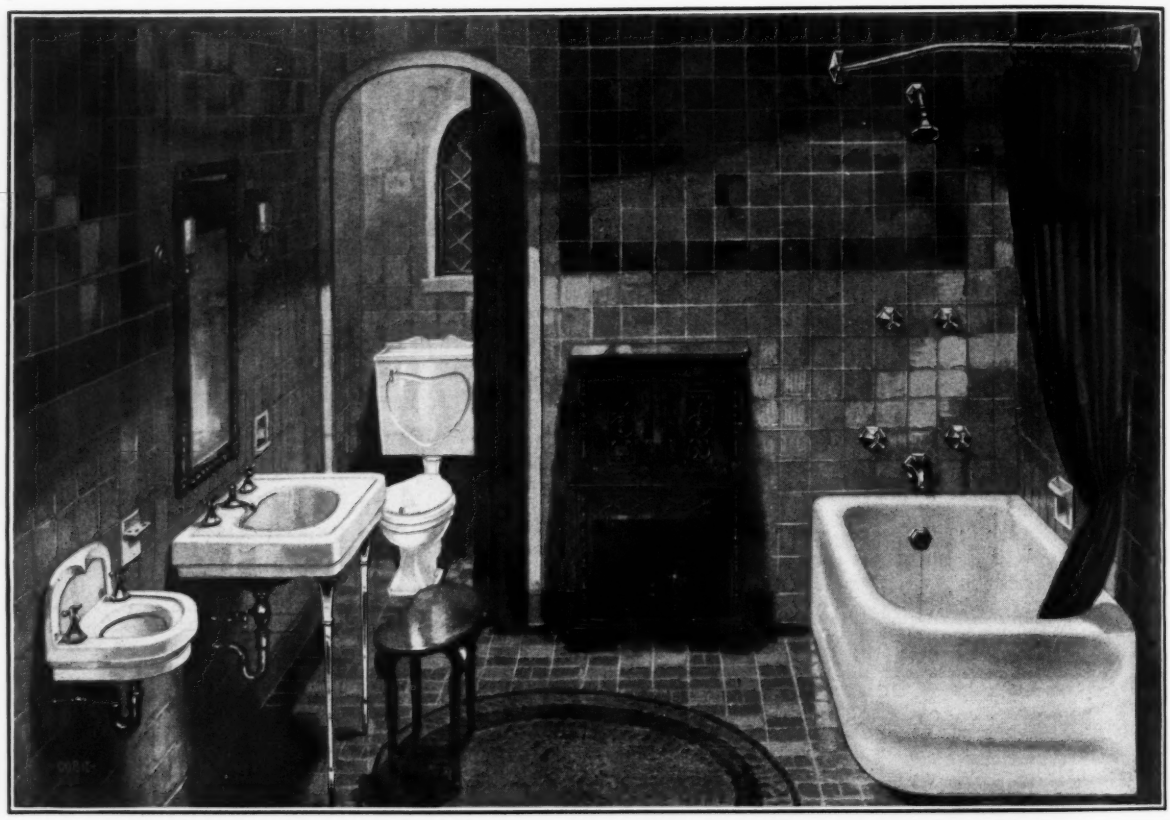
Fig. 2

Fig. 1.—Sketch showing the method of connecting the waste and vent pipes to the lavatory basin. A is face of outside wall with brass grating soldered thereon; B, dotted lines showing how loop of vent pipe was extended so as to carry it above the top of the basin; C, lead vent pipe; D, lead waste pipe passing along behind vent pipe; E, vitreous porcelain basin; F, marble top one inch thick; G, marble skirting

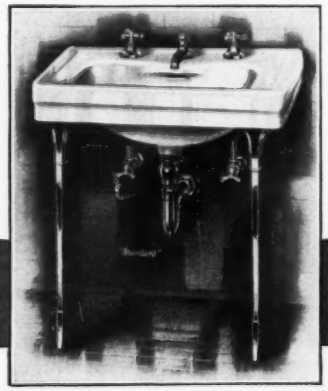
Fig. 2.—Plan of sanitary apartments. A, end of vent pipe; B, lead-soil pipe; C, trap vent pipe (lead); D, waste pipe from lavatory; E, lead vent pipe from lavatory basin; F, indicates the extent of structural steel work necessary to carry weight of building above roadway

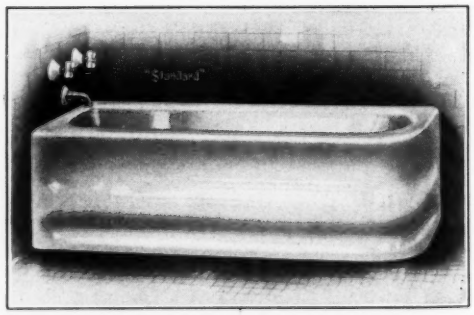
Fig. 3.—Showing how a 2-inch cast iron bend was blocked by lead which passed while molten, through the joint into which insufficient oakum had been driven; G, lead blocking up bore of bend; H, small clear opening when work was first completed. This opening was soon nearly closed

"Standard" PLUMBING FIXTURES



The Chesterton Lavatory F 80 G (Finish X) is shown in the bathroom above. Mastercraft fittings, legs in Chromard and a wide top add to its attractiveness.

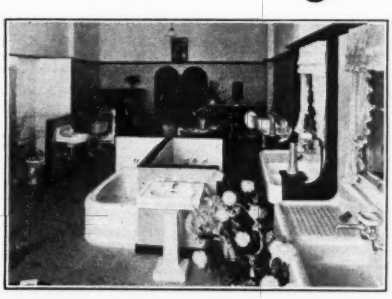




The Pembroke P 2312 N, the most popular built-in bath, is obtainable in white or a number of pleasing colors.

Quality fixtures~Color~and dependable workmanship will sell finer bathrooms and bring better business

Better business, and all that it means—larger sales volume, increased profits, more individual satisfied customers, and greater prestige and reputation for doing a good job—is the hope of everyone for 1929



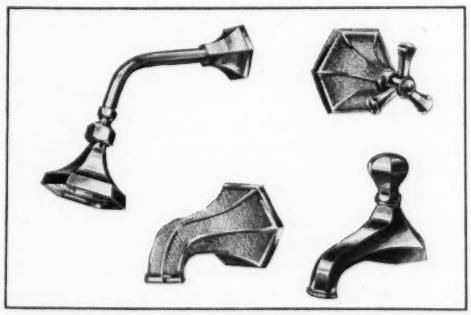
One of the recent Plumber's display rooms outfitted with "Standard" Plumbing Fixtures. A wide variety of better fixtures in handsome settings encourage the prospect to consider the finer installations.

Finer bathrooms, in new and in replacement installations, offer unlimited opportunities for increasing *your* business. Handsomely decorated and enlarged interiors, color in a greater variety for the fixtures and for the room treatment, and a selection of beautiful "Standard" Plumbing Fixtures in designs never before available and at prices within the reach of the modest or the expensive budget—all combine to make possible bathrooms that are really finer and that add beauty and value to every home.

The bathroom illustrated on the opposite page is one of the new "Standard" designs. It shows a room capable of easy realization at an expenditure within the compass of thousands of prospective owners. It is simple in arrangement, but in design and in beauty it is far in advance of the bathrooms now installed in many homes whose total cost easily could provide for an interior such as this.

You can best secure contracts for finer bathroom construction by displaying the better fixtures. Your shop should be your showroom, where you can better sell your customers bathrooms such as these. Whether the display be as fine as that shown above, or whether it comprises just a few items, let attractive, "Standard" fixture designs in color, Acid-Resisting Enamel, and brass fittings of distinction assist you in developing greater 1929 business.

Standard Sanitary Mfg. Co. - Pittsburgh



Mastercraft fittings in Chromard or gold-plate. "Standard" fittings also can be had with colored china parts to match the colored fixtures.

The Savoy F 2020 is a quiet "Standard" syphon-jet closet, extremely sanitary and efficient. The Dental Lavatory shown is the Portal, F 570 (Finish X)

stack, from the fittings to the drainage in the sub-basement was about 45 feet.

It is necessary to point out that a roadway which forms a short cut between two important thoroughfares in the city, passes under a portion of the first floor, and also under the sanitary apartments, and this introduced structural difficulties which made necessary the crowding together of soil, waste, vent, and hot and cold service pipes into a very small space. It also made it necessary to run them to the sub-basement by a very circuitous route. Moreover it made it impossible to vent the lavatory waste pipe in the usual manner; it had to be loop-vented as indicated by the sketch Fig. 1.

When the offices had been occupied for about six months, the firm that had carried out the plumbing work received a complaint that the waste pipe from the lavatory basin appeared to be stopped up. The water would not run out of the basin quickly. The manager informed me of the complaint, adding that he was sending a man to CLEAR IT OF GREASE by pouring down it a pailful of boiling water in which a quantity of soda had been dissolved. I said, "Surely you don't think that the difficulty can be overcome by doing that; only two millionaires wash their hands in that basin, consequently, where can any quantity of grease come from?"

The manager answered, "Oh, the women who wash the office floors empty their pails in the basin." I was laughed at, and consequently made no further comment.

In the course of a fortnight complaint followed complaint, and pailfuls of boiling soda water were poured down the waste pipe every few days, but the trouble became worse.

Matters came to a head when occasionally (each time the basin was emptied after use) water was discharged from the end of the vent pipe, A, Fig. 1. The end of the vent pipe has a brass grating soldered in it, consequently the soapy water descended on the people passing underneath as though it had been poured from a watering can held at a height of about 25 feet above the street level.

One afternoon a gentleman complained to one of the millionaire partners that his silk hat and coat had been damaged by soapy water. The architect was then called in, and matters warmed up considerably. But when an alderman of the city, on his way to attend a committee meeting presided over by the Lord mayor, received a shower bath of dirty water, something really had to be done which would put an end to the nuisance. The worthy alderman had no fear of millionaires; he stormed their sanctum, and demanded the cost of a new hat and new clothes. Moreover, in a voice shrieking with rage he asked, "How is my appearance to be made sufficiently respectable to enable me to meet the Lord mayor in ten minutes from now?" Eventually he was pacified, and he kept his appointment, but those concerned decided that someone connected with the plumbing profession ought to be sent to penal servitude.

SECOND PLAN FAILED

THAT same evening the manager came to me and said, "I want you to go after five P. M. and look at that lavatory job, and tell us if, by any means, it is possible to carry the loop of the vent pipe above the top edge of the basin." The following morning I informed him that by burying the pipe in the hollow brick partition behind the 12-in. marble skirting, it would be possible to carry it up about 10 in. above the top of the basin, but that I was certain that the trouble would not be overcome thereby. He answered, "If you can carry the loop up 10 in. above the basin, that will overcome the trouble. Get everything ready, and then go one evening after 5 o'clock and get the job finished so that all is ready for use the following morning." I extended the loop of the vent pipe, as directed, but the water was thrown out of the end, and on to the roadway, with as much force as before. There had been a waste of time and materials, and no good whatever resulted.

The following day the head of the firm came and talked the matter over with the writer. I expressed the opinion that it would be necessary to disconnect the 1½-in. lead waste pipe from the hub at the top of the 2-in. cast iron stack and that, as the lead waste pipe was buried in the wall behind the valve W. C., it would be necessary to take out the closet. Then we would have to find out the actual position of the stoppage in the 2-in. waste pipe.

With my helper, I took down the lavatory basin; afterwards taking down the mahogany enclosure and seat, and taking out the W. C.; and these fittings, together with a number of feet of 1½-in. lead waste and vent pipe, had to be placed in front of a brick and plaster partition where they were in full view of everyone entering the offices. These displaced fittings represented the acme of unsightliness, but it was the only place in which they could be put where they were not in the way. The millionaire partners watched closely, looking at us as though we were arch-criminals.

After taking out the sanitary fittings, I said to my helper, "Get a hammer and chisel and cut away the plaster very carefully so that we may trace the lead waste pipe and disconnect it from the hub on the cast iron pipe, but there is a 2½-in. lead vent pipe, from the W. C. trap, running somewhere near the waste pipe, and as I particularly wish to avoid damage to any of the lead pipes, you had better proceed very carefully." I then left him while I went below to trace the 2-in. cast iron waste pipe in the sub-basement, where it was fixed on the face of the wall. On my return I saw only one small hole in the plaster. My helper, with a doubtful look on his face, said, "The chisel went in very easily so I thought I had better do no more until your return." I found that he had cut into the 2½-in. lead vent pipe, which had barely ⅛ in. of plaster covering it. We had certainly made a good start!

Eventually all the necessary brick and plaster was cleared away, and the first caulked joint having been cut out and the lead waste pipe removed, it was possible to push a stiff wire, with a ball of solder on the end, into the 2-in. cast iron pipe, but owing to the number of bends it was not possible to get the wire to enter for more than ten feet. I next tried a lead ball on the end of a long cord, and when this had been lowered about 30 ft., it would descend no farther. Asking my helper to continue pulling the cord up a few feet and then quickly letting it fall again, I went below and placed my ear on a bend where the waste pipe came through the wall into the sub-basement. The position of the blockage having been located, and the hour for leaving work having arrived, we packed up for the day.

The Monday following was a legal public holiday in England, and I had arranged to go into the country for a short holiday. Having put on my coat, I went to one of the millionaires and informed him, with some measure of satisfaction, that I had located the blockage; he said, "Well, of course you'll work this afternoon, tomorrow, and Monday, so as to get the job finished before business hours on Tuesday morning." I answered, "No sir, I've made arrangements to go to the country and I shall not return until Tuesday morning."

"Just you wait a minute, young man," he replied, as he picked up the telephone from his desk; a few moments

(Continued on Page 68)

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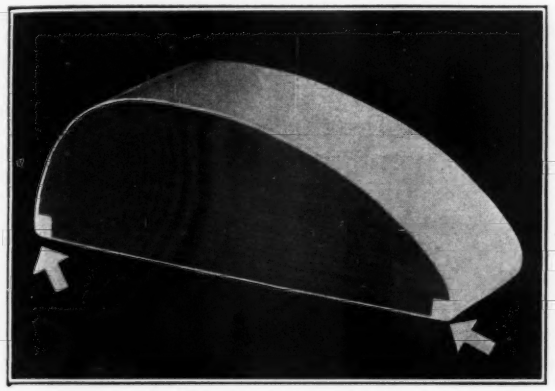

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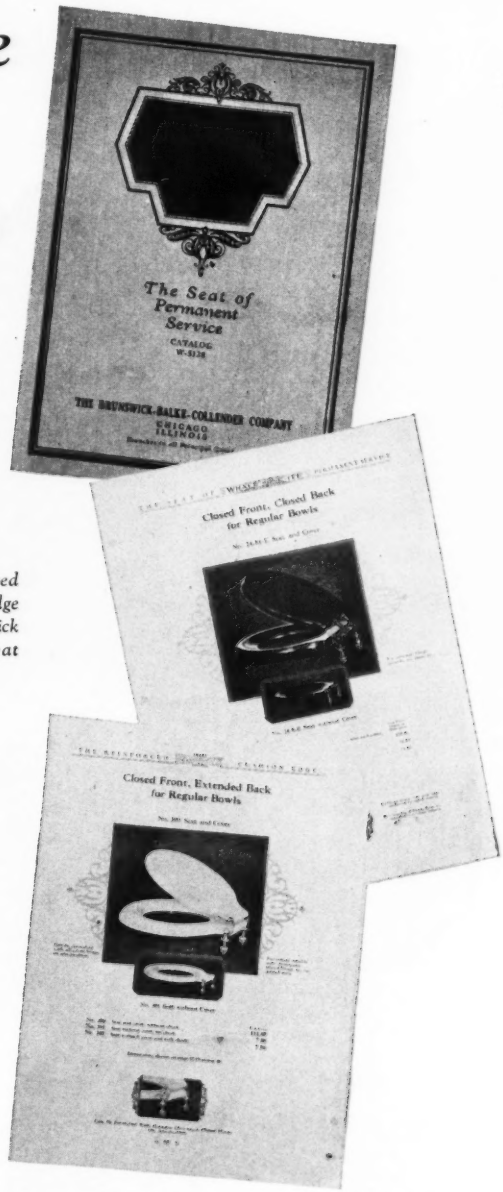
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"Do not be a Goop, Wil-bur-force, the man is an ex-as-per-a-ted Mas-ter Plum-ber."

"What has the ex-as-per-a-ted Plumber got in the sack?"

"He has got his Jour-ney-man Plumber."

"What is he go-ing to do with the Journey-man Plum-ber?"

"He is go-ing to drop him down a well."

"Why is he go-ing to drop him down a well?"

"To teach him a les-son, Wil-bur-force."

"What is the les-son he wants to teach the Jour-ney-man?"

"That you should nev-er sell a wash-down toi-let in-stead of an Im-prov-ed Mad-era."

"Hoi-ty, toi-ty, Le-roy. Is the Mad-era, then, a bet-ter toi-let?"

"I hope to wash an el-e-phant, it is bet-ter. It does not cut up. It does not stop up. It has a great big trap-way. And it is four times as prof-it-able to the Plum-ber as a wash-down."

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Concealed Radiation

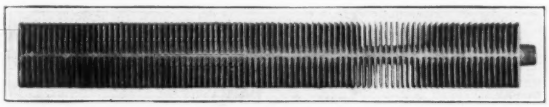


Fig. 1.—Plan view of radiator

By HAROLD L. ALT

Article No. 10

A DEPARTURE from the ordinary methods of construction in the manufacture of concealed radiation is described and illustrated in this article. The heating elements are cast in one piece so that there is no question as to the conduction and heat transmission between the prime and the extended surfaces.

The heating elements are made of cast aluminum with a streamline designed core and are, of course, without joints of any kind. The manufacturer claims that these radiators will withstand at least 250 lb. pressure and that they are not damaged by freezing.

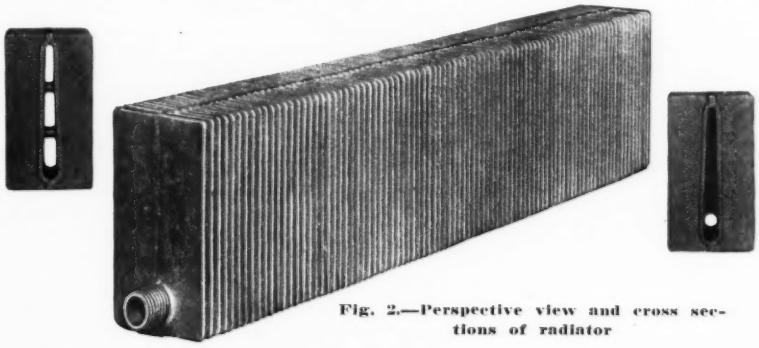


Fig. 2.—Perspective view and cross sections of radiator

In Fig. 1 is shown a plan view of one of these radiators, while in Fig. 2 is a perspective view as well as cross sections indicating the streamline design of the core. This type of radiation was primarily developed for use in unit heaters but its various fea-

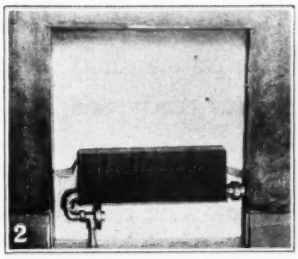


Fig. 3.—Radiator built in the wall

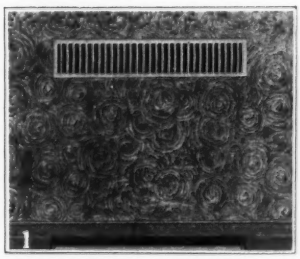


Fig. 4.—Finished appearance

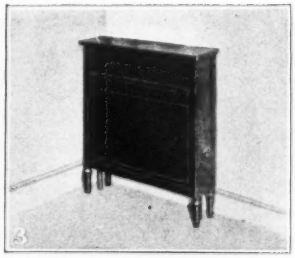


Fig. 5.—Application of heaters to heat cabinets

Fig. 6.—A popular pattern in metal lace

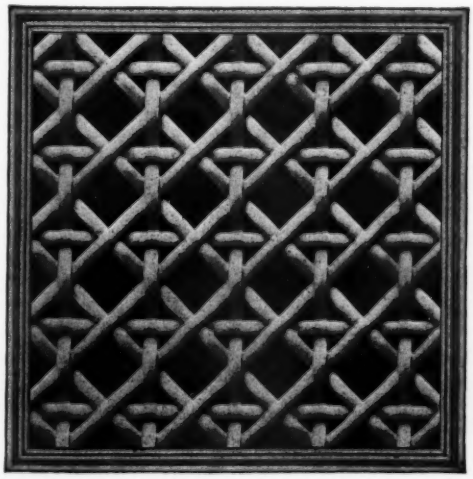
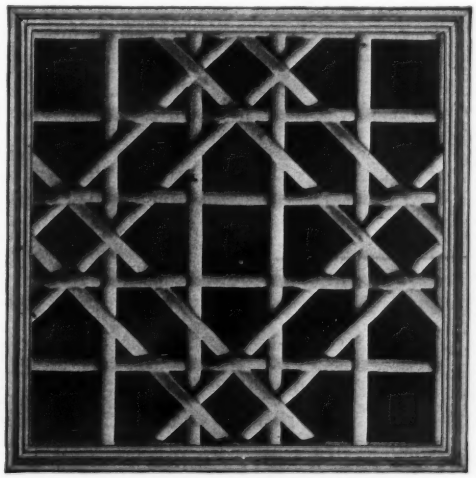
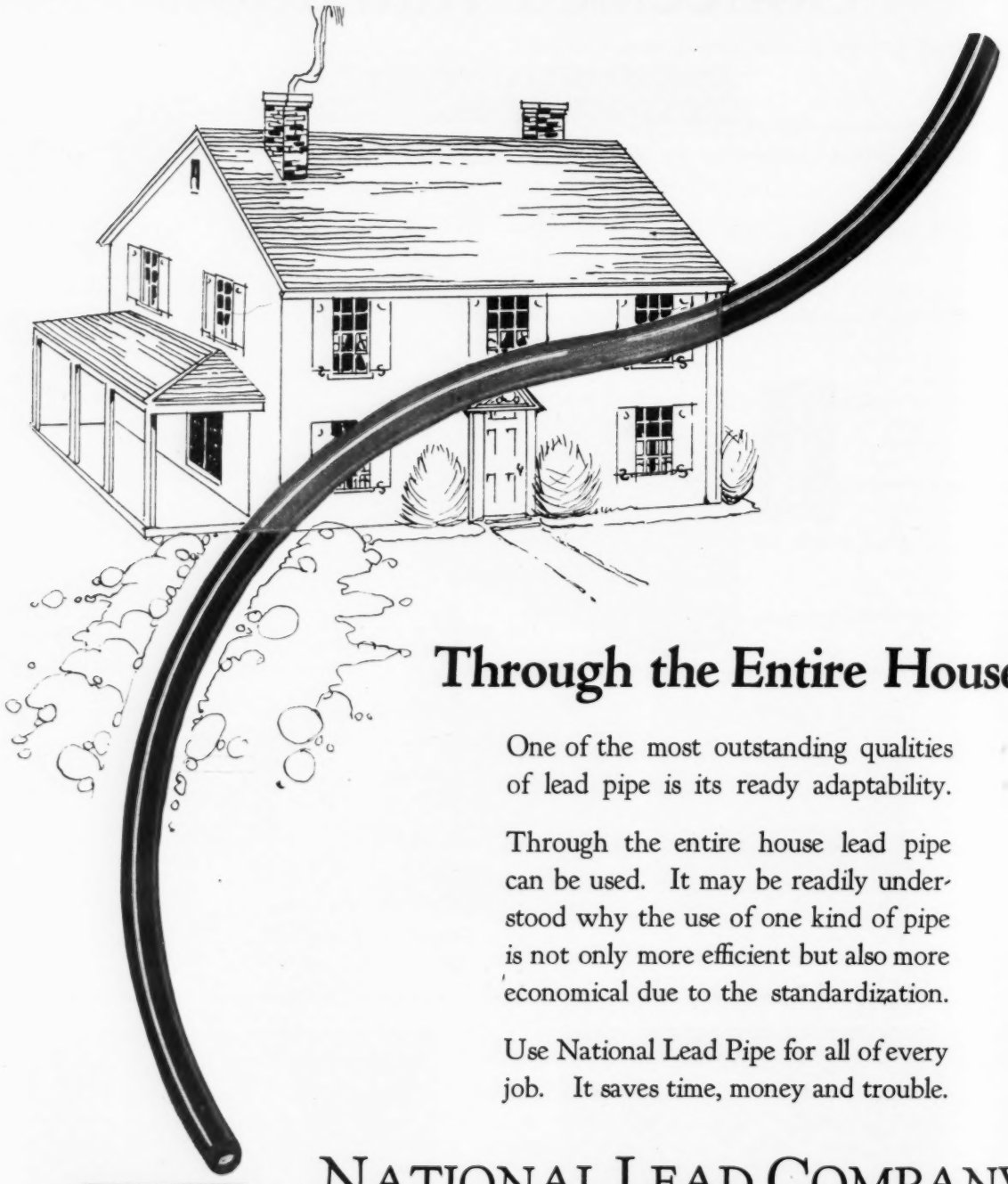


Fig. 7.—Another more open design of metal lace



LEAD PIPE



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National Lead Co. St. Louis, Mo.
National Lead Co. (Northwestern Works) St. Paul, Minn.
Hoyt Metal Co., Ltd. of Canada Toronto, Canada

tures led the manufacturers to use it also for concealed heaters built directly into the wall as shown in Fig. 3, leaving a finished appearance as indicated in Fig. 4.

Naturally the application of this element to heat cabinets followed and the appearance when so treated is indicated in Fig. 5.

Woven Metal for Heating Cabinets

A comparatively new product on the market which is being used in the concealing of radiators is composed of strands of metal woven in a pattern similar to the patterns in cane seats.

Prior to the development of this product, the only substitute for woven rattan cane seating was perforated or punched metal plate. This suggested the idea of weaving metal strands or laces. Cane seating with metal laces is now often used instead of cane. This woven metal is produced in both cold rolled and bronze wire fabrics which may be cut with hand shears or a machine cutter; it may be fitted into slots to form grilles and panels and finished off around the edge with a small molding.

This material is used in concealing radiators and can be easily cut on the job to fit almost any size of opening not over 36 inches wide and 50 feet long. It does not warp, is fireproof and can be plated in nickel, brass, copper, bronze, silver, or gold or may be enameled or lacquered as desired.

A few of the more popular patterns are illustrated in Fig. 6 and Fig. 7.

Consumption of Oil in Oil Burners

By H. T. HALL

AN INTERESTING question and one that is often raised is, "How much oil will be burned per boiler horse power developed?" The quantity is dependent upon the kind of oil burned (degrees A. P. I.) and upon the efficiency of the boiler. The quantity at best can only be approximated as the efficiency of the boiler remains a variable which is influenced by many factors, such as cleanness, chimney height, perfectness of combustion, insulation and setting.

The heat content of the various degrees of oil, however, remains an almost constant quantity, and in case of uncertainty can be ascertained for the particular grade of oil which the operator expects to use.

A boiler horse power is equal to the heat required to evaporate 34.5 lb. of water from and at 212 degrees F. into steam at the same temperature. Looking up in the steam tables it will be seen that 1 lb. of water evaporated under these conditions will require 970.4 B.t.u., and this multiplied by 34.5 lb. will give 33,460 B.t.u. as the equivalent heat for one boiler horse power.

As previously stated, the B.t.u. content in a gallon of oil will depend upon the grade of oil and can be ascertained for any particular degree of any particular kind of oil. If, for example, it is assumed that 28-degree oil is contemplated, it will be found that the B.t.u. value of this grade of oil will be around 141,000 B.t.u. per gallon.

Assuming also that 100 boiler horse power is the capacity under consideration, the total oil consumed per hour will be $33{,}460 \times 100 \div 141{,}000 = 23.7$ gallons, or, if it is desired to reduce this to 1 boiler horse power, all that is necessary to be done is to divide this amount by 100, thus:

23.7 gal.÷100=0.237 gal. per B.h.p.

But this is only the number of gallons of oil containing enough B.t.u. to equal the boiler horse power mentioned. In order to actually transfer this B.t.u. from the oil to the water or steam in the boiler, it is necessary to burn the oil under the boiler and to allow the heat to be absorbed by the water in the boiler. Unfortunately this process of combustion is not 100 per cent perfect.

A certain amount of air must be admitted to support combustion, and this air must be heated; all of the gases formed by the combustion process ultimately find their way out by way of the chimney and carry a certain amount of heat away with them. Again a certain amount of heat radiates from the oil burner fire box and from the boiler itself. All of these various heat losses must be made up by the heat supplied by the oil, heat that is never delivered out of the boilers—all of it is lost.

As the boiler delivers in the steam only the heat which is not lost, it follows that the boiler delivers only a fraction of the heat supplied by the burning oil. This fraction usually is between 65/100 and 75/100 of the total heat produced by the burning oil.

Consequently the boiler is said to have an efficiency of 65 per cent, or 70 per cent, or 75 per cent, as the case may be, depending upon what percentage of the total heat produced is delivered from the boiler nozzle. Thus it will be seen that to produce 1 boiler horse power or 100 boiler horse power, sufficient oil will have to be burned to supply this amount of heat, also enough additional oil must be burned to take care of all the heat losses which occur in the burning and heat transfer process.

If it is assumed that the boiler in this case has 65 per cent efficiency, then the quantity of oil required for supplying the actual horse power must be divided by the overall boiler efficiency to determine how much oil will actually be necessary.

0.237 gal.÷65 per cent=0.364 gallons for 1 B.h.p.

or

23.7 gal.÷65 per cent=36.4 gallons for 100 B.h.p.

On the other hand, with 70 per cent boiler efficiency, the quantity of oil required would be less as the losses are smaller, as will be seen by 0.237 gal÷70 per cent=0.338 gal. for 1 B.h.p., or 23.7÷70 per cent=33.8 gal. for 100 B.h.p.; going still farther and using 75 per cent, the answer becomes 0.237÷75 per cent=0.316 gals. for 1 B.h.p.; 23.7÷75 per cent=31.6 gals for 100 B.h.p.

From this it will be seen that the boiler efficiency is a very important factor in determining the quantity of oil which will be consumed as well as the oil itself.

Development of Iron Ore Deposits at Yampi Sound, Western Australia

Recently an agreement was entered into by a Japanese organization with a West Australian syndicate for the purchase of iron ore from Yampi Sound, Western Australia, according to a report just received from U. S. Trade Commissioner E. C. Squire of Sydney, Australia. Investigations have proved that there are rich deposits of iron ore of good commercial value at Yampi Sound, and for the purpose of developing them a West Australian syndicate has obtained British finance for ore quarrying and harbor construction. Yampi Sound is said to have a good natural harbor, and it will be comparatively easy to deliver ore to the ships by gravitation. By this method it is expected that loading will be greatly expedited.

How to Pump
Hot Water

By WM. MASON

MOST engineers are aware that difficulties are encountered in the pumping of hot water; that there is a limit to the depth from which a pump will draw water of a given temperature, this limit decreasing as the temperature increases; and that above a certain temperature it becomes necessary to supply the water to the pump under pressure. Not every engineer, however, is of the mathematical turn of mind to calculate the provision to be made under a given set of conditions, and it is to such that the writer offers the present article, in which the difficulties are explained and the method of circumventing them is set forth.

Fig. 1 shows diagrammatically the most usual condition. The actual vertical height through which the water is lifted is denoted by H, which theoretically should be measured from the surface of the water to the suction valves of the pump, when the water is at its lowest level. When the pump is started up, a vacuum is created in the suction pipe, which enables the pressure at T to force the water up the pipe. Obviously, then, the depth H depends on the pressure obtainable at the surface of the water. Suppose the atmospheric pressure at the surface to be 14.7 lb. per sq. in., then, since a pressure of 1 lb. per sq. in. will balance a column of water 2.3 ft. high, it follows that with cold water the pump should be able

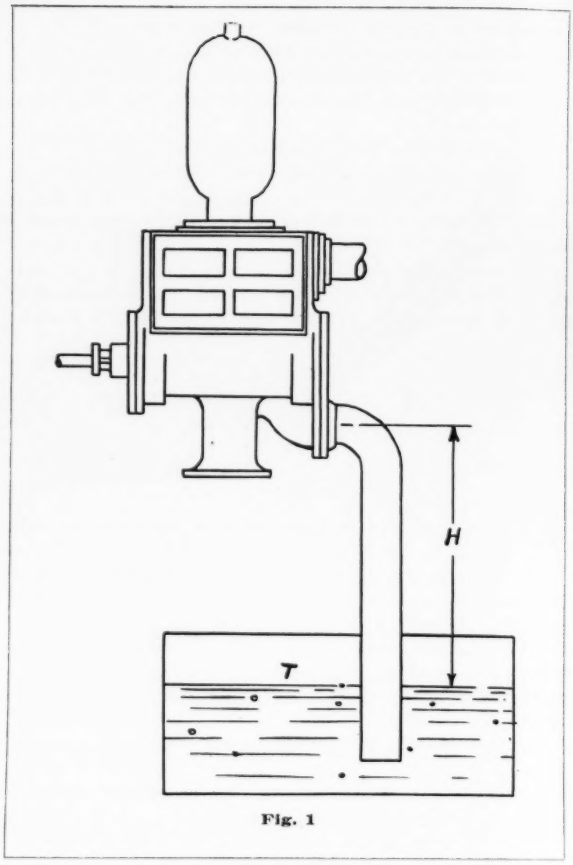


Fig. 1

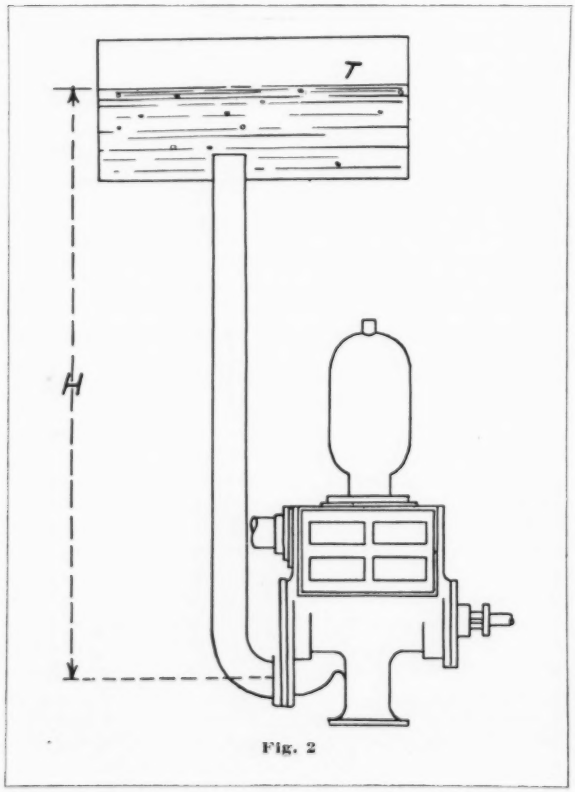
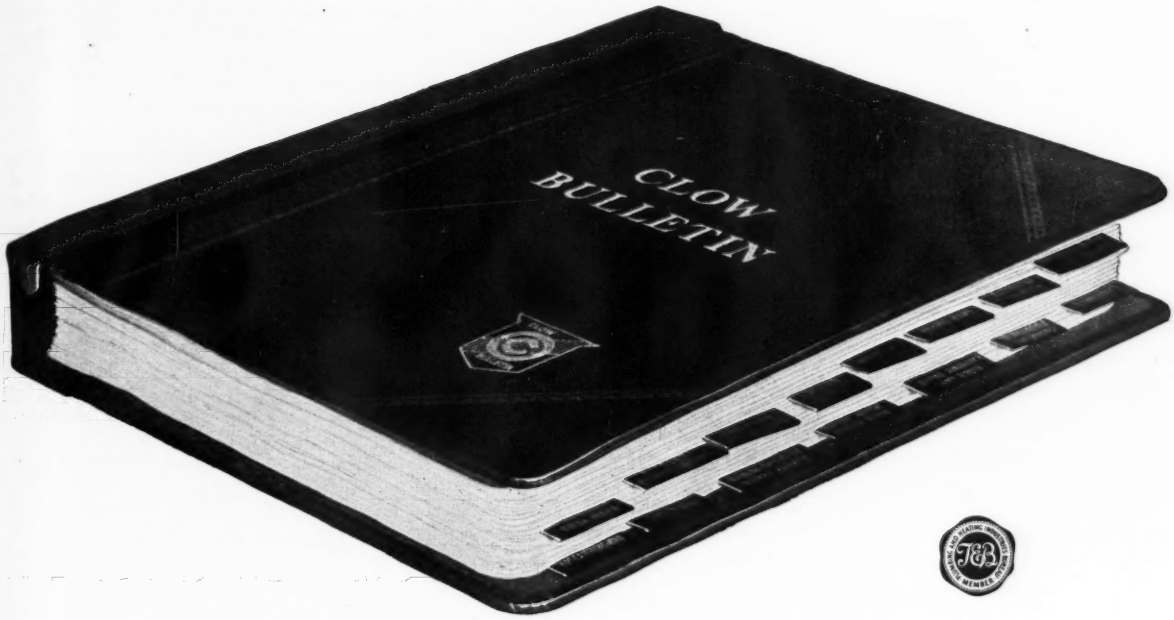


Fig. 2

theoretically to lift the water a distance of $14.7 \times 2.3 = 33.8$ ft. In actual practice, however, this cannot be done, due to leakage at the pump bucket and valves, and to friction in the suction pipe. Moreover, where the suction pipe is very long or has a considerable number of bends, valves, and the like, a further loss is encountered. With conditions somewhat as shown in Fig. 1 it is found that a practical value for H is about 0.75 of the theoretical—i.e., $33.8 \times 0.75 = 25.3$ ft., although it is possible that a newly installed pump may be capable of improving slightly on this.

But under different conditions, new factors enter into the calculations and extra allowances have to be made. In the presence of hot water, for instance, a factor called the "pressure of water vapor" demands consideration. The pressure of water vapor at any given temperature is the pressure which must be maintained in the water space if that temperature is to be maintained. Every engineer knows that at atmospheric pressure water can be heated to 212 deg. F., but that at this temperature it begins to evaporate. If the pressure be suddenly reduced below that corresponding to the temperature, the water will boil, and will continue to do so until the temperature corresponding to the new pressure has been reached. This is what happens in the case of the pump suction pipe, and is the cause of the trouble experienced by the refusal of the pump to take the hot water. To prevent boiling, a part of the pressure available at T, Fig. 1, must be sacrificed to make up for the loss of pressure created by the pump, the residue being utilized to force the water up the pipe. Table 1 gives the pressure of water vapor at ordinary temperatures. Thus, suppose in the foregoing example the water, instead of being cold, had had a tem-



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perature of 180 deg. F. The pressure of water vapor corresponding to this is 7.51 lb. per sq. in., which has to be subtracted from 14.7 lb. per sq. in. to get the available pressure at T, Fig. 1, to force up the water: 14.7—7.51=7.19 lb. per sq. in. This is equivalent to 7.19×2.3=16.5 ft. head. Again allowing 25 per cent for losses, we have 16.5×0.75=12.4 ft., which is the height the pump will lift the water.

Table No. 1
Pressures of Water Vapor at Various Temperatures

Temp. Deg. F.	Lbs. per Sq. in Abs.	Temp. Deg. F.	Lbs. per Sq. In. Abs.	Temp. Deg. F.	Lbs. per Sq. In. Abs.
60	0.26	140	2.89	220	17.19
70	0.36	150	3.71	230	20.77
80	0.51	160	4.74	240	24.97
90	0.70	170	5.99	250	29.82
100	0.95	180	7.51	260	35.42
110	1.27	190	9.34	270	41.85
120	1.69	200	11.52	280	49.18
130	2.22	210	14.13	290	57.55

But there is another item which fails to be considered at times—namely, the elevation of the pump above sea-level. An atmospheric pressure of 14.7 lb. per sq. in. is obtained only at sea-level, and diminishes as the elevation increases, so that a pump situated a thousand feet high cannot draw from as great a depth as at sea-level, since the pressure available to force the water up the suction pipe is less. Table No. 2 gives the atmospheric pressure at different elevations up to 5,000 ft., so that we are now in a position to fix up the suction lift for a pump situated at any elevation and dealing with water at any tempera-

Table No. 2
Atmospheric Pressure at Various Elevations

Elevation above Sea-level in Feet	Barometric Pressure Inches Mercury	Atmospheric Pressure Lbs. per Sq. In.
0	29.93	14.70
500	29.39	14.43
1000	28.86	14.17
1500	28.34	13.91
2000	27.82	13.66
2500	27.31	13.41
3000	26.81	13.17
3500	26.32	12.93
4000	25.84	12.69
4500	25.36	12.45
5000	24.89	12.22

ture. Still keeping to our previous example, assume that in addition to the water being at a temperature of 180 deg. F., the pump is situated 2,000 feet. above sea level. The atmospheric pressure at this elevation is 13.66 lb. per sq. in. Deduct pressure of water vapor: 13.66—7.51=6.15 lb. per sq. in. Convert to feet head 6.15×2.3=14.14 ft.; allow 25 per cent for losses, and the suction lift H under the new conditions=14.14×0.75=9.43 ft.

Table No. 3
Suction Lift in Feet at Various Elevations and Temperatures

Elevation above Sea-level in Feet	Temperature of Water in Deg. F. 60	80	100	120	140	160	180	200
0	24.9	24.5	23.7	22.4	20.4	17.2	12.4	5.5
1000	24.0	23.6	22.8	21.5	19.4	16.3	11.5	4.6
2000	23.1	22.7	21.9	20.6	18.5	15.4	10.6	3.7
3000	22.3	21.9	21.1	19.8	17.7	14.6	9.8	2.8
4000	21.4	21.0	20.3	19.0	16.9	13.7	8.9	2.0
5000	20.6	20.2	19.5	18.2	16.1	12.9	8.1	1.2

Let us consider now the case in which the water is so hot that it has to be supplied to the pump under pressure. This state of affairs occurs when the pressure of water vapor corresponding to the temperature under consideration is greater than atmospheric, when it becomes necessary to supply from some outside source the excess of pressure above atmospheric which is required. These conditions are represented diagrammatically in Fig. 2, where H is the extra pressure required measured in feet head. Take as an example a feed pump on board a modern steamship taking water from a heater at a temperature of, say, 220 deg. F. atmospheric pressure at sea-level =14.7 lb. per sq. in. Subtract pressure of water vapor at 220 deg. F.: 14.70—17.19= —2.49 lb. per sq. in. Convert to feet head: 2.49×2.3=5.75 ft. Again keeping 75 per cent efficiency: 5.75÷0.75=7.67,—that is, the source of supply should be about 8 ft. above the pump suction valves, although it is probable that in the example quoted the heater would be placed much higher than this, advantage being taken of all the head room available. It will be noticed, too, that in this case the theoretical head is divided by the efficiency, since the difference has to be added.

Table No. 4
Head Over Suction in Feet for Various Elevations and Temperatures

Elevation above Sea-level in Feet	Temperature of Water in °F. 210	220	230	240	250
0	−1.0	7.6	18.6	31.5	46.4
1000	0.0	9.3	20.2	33.1	48.0
2000	1.4	10.8	21.8	34.7	49.6
3000	2.9	12.3	23.3	36.2	51.1
4000	4.4	13.8	24.8	37.7	52.5
5000	5.9	15.3	26.3	39.2	54.0

In Tables 3 and 4, H and H have been calculated and tabulated for various elevations and temperatures, Table 3 giving those cases where the pump is able to "lift" the water, and Table 4 giving the instances where the water has to be supplied to the pump under pressure. It will be observed in the latter that the "head" at sea-level and 210 deg. F. is given as —1.0 ft. This simply means that by calculation it is found that the pump will "lift" the water 1 ft. under these conditions. It should be noted also that Tables 3 and 4 are calculated in the same way as the examples given above, for arrangements after the nature of Figs. 1 and 2, and that under special conditions, such as long suction pipes, special treatment will be necessary.

Central Heat Control in the Oliver Building in Pittsburgh

(Continued from Page 21)

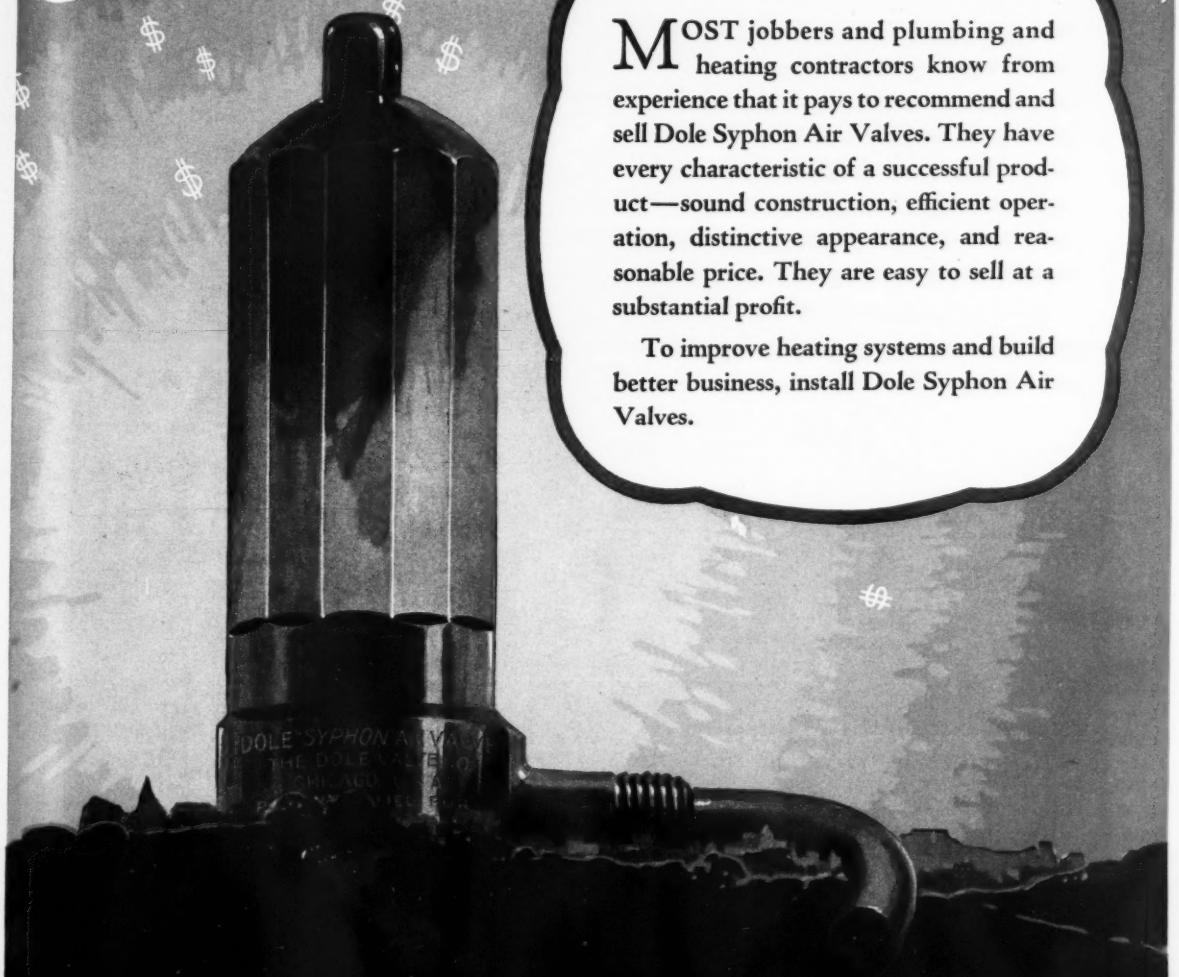
the central control proved not only its value for effecting steam economy but also demonstrated its value as a complement to individual radiator control, as it prevented careless overheating.

Fig. 10, pressure chart for February 26, 1928, a day of 18 degrees mean outside temperature, illustrates the purpose for which central control was originally purchased; that is, for the lowering of night temperatures. During the period when steam was off the building, or from 11 p. m. to 5 a. m., cooling amounted to 4 degrees. The steam savings, using the control in this way, averaged 20,000 pounds per day. As the central control was installed simply as a night control, the latter economies were effected immediately. Later developments made possible by the use of central control during the day cycle in mild weather, together with consequent increases in steam economies, have proved central control to be a valuable complement to individual radiator control. The fact that it is applicable to older types of heating systems, as well as to the newer and more modern ones, makes it available to a host of building owners.

Over the hill to Greater Profits

MOST jobbers and plumbing and heating contractors know from experience that it pays to recommend and sell Dole Syphon Air Valves. They have every characteristic of a successful product—sound construction, efficient operation, distinctive appearance, and reasonable price. They are easy to sell at a substantial profit.

To improve heating systems and build better business, install Dole Syphon Air Valves.



Automatic All Metal

Dole

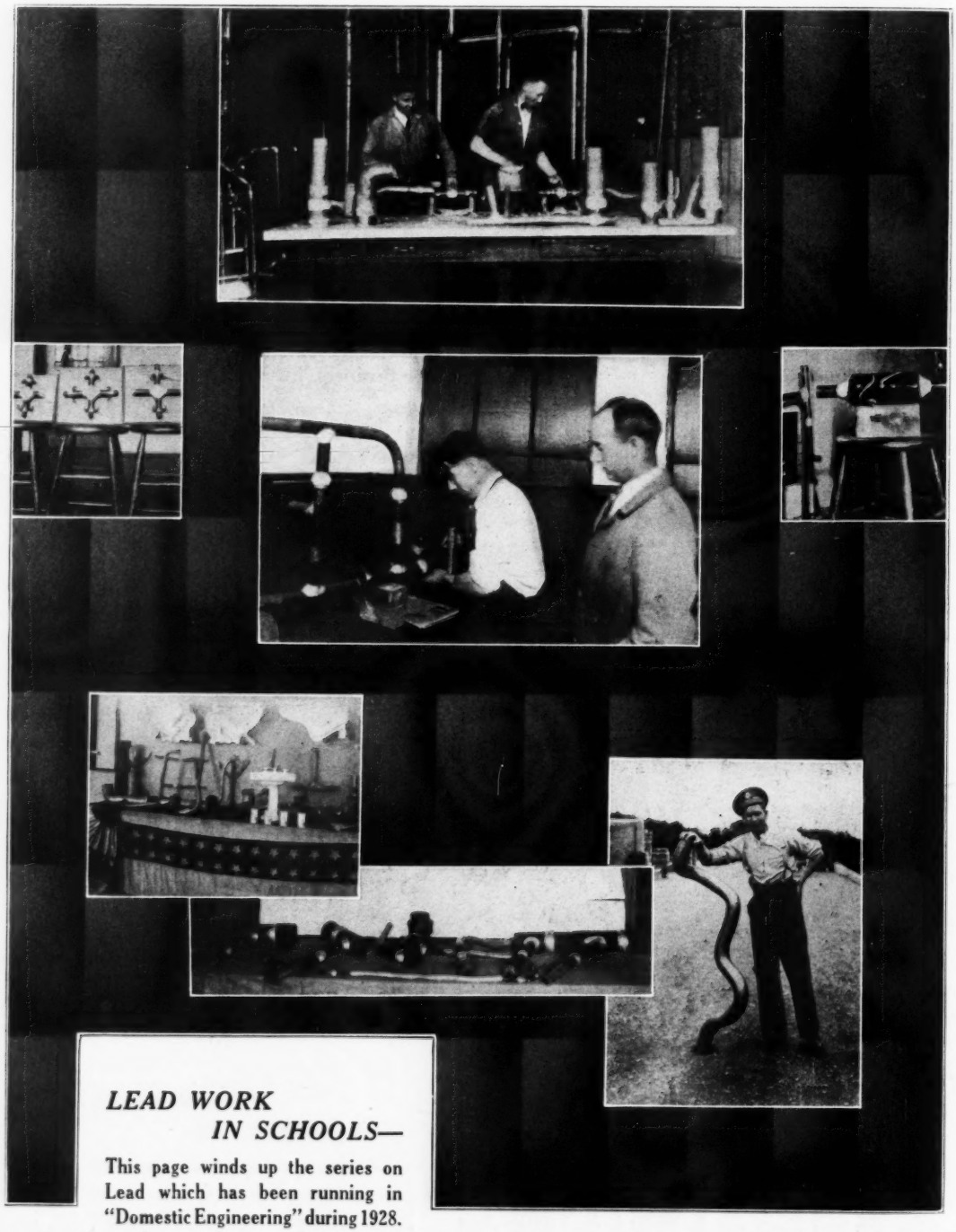
Non-adjustable Thermostatic

SYPHON AIR VALVE

The Dole Valve Company, 1913-33 Carroll Ave., Chicago, Ill.

LEAD — ITS STORY AND ITS USES

No. 25 in a Series of Picture Stories Describing Lead and its Uses in Plumbing and Sanitation



LEAD WORK IN SCHOOLS—

This page winds up the series on Lead which has been running in "Domestic Engineering" during 1928. The series has shown the manufacture and uses of lead from ancient times until the present. The last few pages of the series have shown examples of lead work in the various plumbing schools throughout the country. The pictures on this page are from plumbing schools in the following cities: top, Portland, Ore.; center, left and right, Johnstown, Pa.; center, New York City; lower left, Atlantic City, N. J.; lower center, Reading, Pa.; lower right, British army school at Aldershot, England.

Too Rapid Circulation *in* Water Heater

AN ARTICLE appeared in the December 31, 1927, issue of "Domestic Engineering" written by William Mason, engineer, Liverpool, England. Below are comments on this article by Leonard R. Incledon, Silverton Plumbing Co., Silverton, Oregon, and by Harold L. Alt, engineer, Philadelphia, Pa.

This is in accord with "Domestic Engineering's" policy, for all readers of "Domestic Engineering" are invited and urged to send in their comments upon technical articles. It is believed that much benefit can be derived from such discussions. Mr. Incledon says:

Re: Article by Wm. Mason, December 31, 1927, Issue, on "Too Rapid Circulation in English Water Heater"

Some years' experience in England leads the writer to comment on the above article. The condition he mentions—too rapid circulation—is practically everywhere the case over there. We did not learn the trick of slow circulation until after landing in the U. S. A. The English idea is to gradually heat the whole tankful evenly, and usually very hot water is not obtainable except after 2 or 3 hours good coal fire.

Here in the West, with a few sticks of kindling, we can get real hot water—say 180 degrees—for dishwashing, with a stove coil, of course, and using the new range boilers with hi-low tappings, and that in say 15 minutes from touching a match to the fire, and with tank at say 60 degrees. Mr. Mason's term "cylinder" will not be clear to many readers but means the same as "range boiler" or "hot water tank."

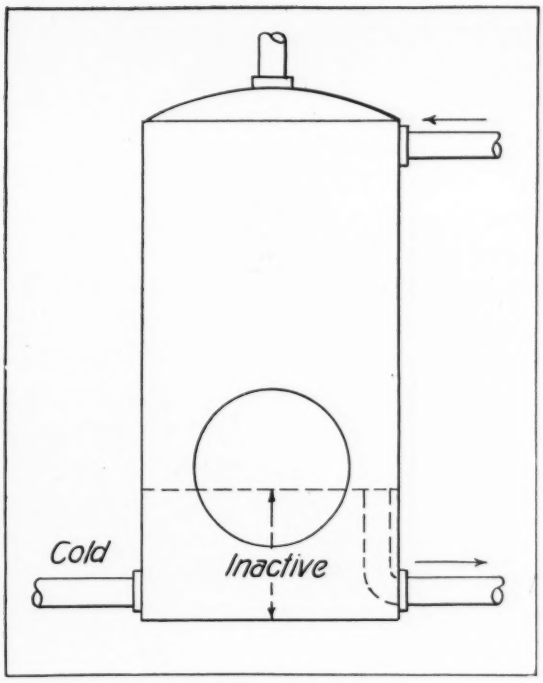


Fig. 1

Since we make the coils long enough and the circulation slow enough to heat water from say 60 degrees to 180 or 200 degrees at one passage through the coil, there is no point in reducing the capacity of the storage, and valves which produce no visible results are an abomination in any household,—nobody knows just what they are for. It is only necessary to heat up just that amount of water which is above the high tap in the range-boiler and water can be drawn,—scalding hot water for dishwashing. If it is not drawn off it continues to build up lower and lower down the range boiler until the whole contents are heated, if the fire is kept up.

Although we have not tried it out, we deduce that the capacity of the range boiler, whether 30, 40, 52 or 60 gallons is not material. Truly it will take slightly longer to heat up a circular body of water 6 inches high by 16 inches diameter than one 6 inches by 12 inches diameter, varying with the square of the diameter. Our theory is that it is not the capacity of the range boiler that is important but the exposed surface of it, which so long as bare or imperfectly insulated is just so many square feet of radiation, and in most cases where a plumber has to deal with a complaint of insufficient hot water from a coil or fire-front he has installed, he will find it better in every way to set about insulating the range boiler than to tamper with its capacity. This can be done cheaply. If it is near to a fire or flue, only fireproof material should be used. Usually it is not long before the customer, finding the water hot in the early morning when most precious and most difficult to get, will sanction a proper boiler jacket.

Leonard R. Incledon.

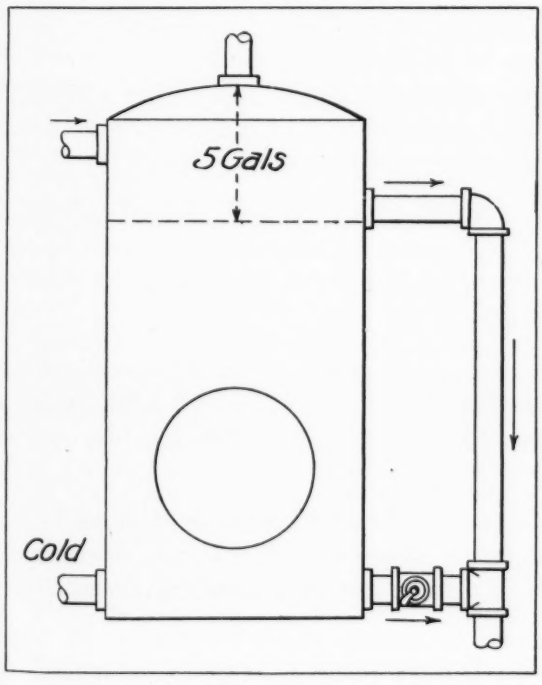
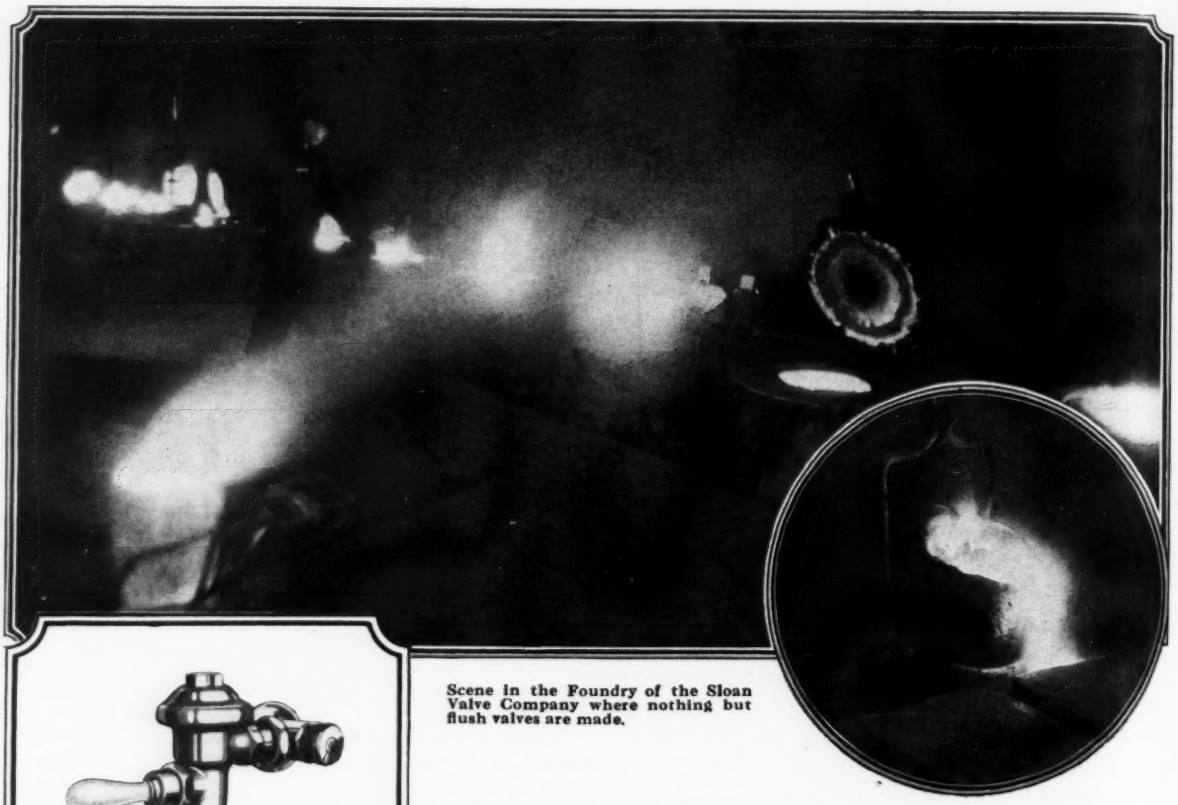


Fig. 2

Mr. Incledon's comments on Mr. Mason's article in "Domestic Engineering" for December 31, 1927, are both interesting and should be authoritative inasmuch as he has had some years' experience in England. He is quite correct in stating that it is British practice to call a

(Continued on Page 64)



Scene in the Foundry of the Sloan Valve Company where nothing but flush valves are made.

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The Marine

The Gem

Flush Valves In Liquid Form

EVERY five minutes the shrill blast of a whistle is heard above the noise of the foundry. It's the signal for the pouring crew to go into action.

A quick adjustment of hoisting tackle . . . a rattle of chains . . . then a crucible, filled to the brim with two hundred and fifty pounds of fiery, liquid metal is lifted from the glowing depths of a furnace.

Hissing and sputtering, the molten metal is poured into the waiting moulds where it is transformed into solid, faultless castings for sturdy bodies and parts of Royal, Marine and Gem flush valves.

Over six million pounds of metal are melted and poured in this foundry during a single year. *And every pound must pass the most rigid tests for uniformity and highest quality.*

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MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

Construction Shows Substantial Gain

THE SEVEN days just passed, according to the majority of reports, showed a rather definite reduction in the movement of plumbing and heating materials from manufacturing sources. Requirements of contractors have also suffered since last week's survey, but this is less pronounced than the let down in buying by wholesalers. In other words, contractors are still finding enough work to keep themselves fairly busy and jobbers, most of whom are well enough stocked to carry over until the first of the year, are not taking in fresh goods until after inventory. Heating materials, though, are still prominent in distributors' sales. Production is so geared that distributors find little or no difficulty in securing material. No price changes were announced by manufacturers during the week.

New construction started in the 37 states east of the Rocky Mountains during the first eleven months of this year, amounting to $6,195,529,800, *shows an increase of* 6 *per cent over the amount started during the corresponding period of last year, according to F. W. Dodge Corp. The territory covered represents about* 91 *per cent of the country's total construction. Of the eight geographical districts into which the report is divided, three of them have shown increases over their totals for the entire year* 1927. *These districts are: The New England states, the Middle Atlantic states and the Central West. During November there was* $471,482,200 *worth of contracts let on new building and engineering work in this area. The above figure shows a gain of* 1 *per cent over the total for November of last year, but there was a loss of* 21 *per cent from the October,* 1928, *total.*

MIDDLE ATLANTIC

Market Retains Its Strong Tone—

The Middle Atlantic market, during the week that has elapsed since the last survey, was lacking somewhat in the activity that has been holding fairly well. In face of this moderation in the transactions in plumbing and heating commodities between manufacturers and wholesalers, which undoubtedly gives the present demand a slightly poorer standing when a comparison is drawn with that which existed a year ago, the price situation, in the full retention of the strength that has been marked, by a like comparison is well above last year. Because of this steadiness a summarization of events of the past 30 days places all the emphasis on the prices quoted by manufacturers. In this connection, soil pipe foundries after an early November advance again improved prices 2½ points early this month. Boiler and radiator prices were also advanced approximately 10 per cent during the closing days of last month and lead pipe prices were raised 15 cents a hundred pounds shortly after the month started.

The rate at which tonnages have been moving into this territory has, however, been receding during the last month. Both long and soil pipe sales moderated a little from week to week; fixtures on the other hand, until the past seven days, suffered little in this respect. This last is also true of boilers and radiators. Where fittings, plumbers' brass goods, and range boilers were involved, demand moderated from week to week, but generally a fair seasonal amount of materials is being installed.

The industry as a whole is coming down to the end of the year with a brighter outlook on the future than was possible last December. Building construction seems to be holding rather well to the pace that has obtained for the past month or more. F. W. Dodge Corp. reported an investment of $10,613,000 in contracts awarded during the first week of December. Of this amount, all but a little more than $300,000 was for the erection of buildings in which plumbing and heating contractors will be interested.

Soil Pipe

Jobbers for the most part are well stocked with soil pipe and on the whole have not responded to the price advance to an extent that could in any way be classed as broad. Master plumber consumption right now is comparatively light, or at least is not of enough consequence to require that wholesalers request shipments from foundries. While at least some manufacturers have rather limited surpluses, no difficulties with deliveries have arisen. Makers' prices are firm and no further change has been made in their published quotations to wholesalers.

Pipe—Brass, Steel and Wrought Iron

The week brought forth little in the way of any visible change with respect to brass pipe over the conditions of a week ago. Demand is seasonally fair where the wholesaler and the master plumber respectively are concerned. Steel pipe was perhaps a little less in demand by plumbing and heating contractors. A reflection of this was caught in the attitude taken by jobbers when going over their requirements with mills. Wholesale houses did little in the way of placing orders with manufacturers for after January 1 delivery. Over this period, all in all, jobbers seemed able to meet the needs of their trade from stock with but little aid from their sources of supply. Prices

remained unchanged by manufacturers and no delivery difficulties were encountered.

Fittings

The placing of a great deal of dependence on being able to get from manufacturers prompt shipments of brass, malleable and cast iron screwed fittings is now, as before, the policy of jobbers generally. While at least some jobbers have fittings bins that are substantially filled, the tendency has been to permit stocks to become depleted to a minimum in preparation for inventories. Consumption during the past seven days was not, according to some of the larger wholesalers, anything like as brisk as it was 30 days ago. Prices in so far as manufacturers are concerned have not been changed.

Enameled Ware

Master plumbers' orders during the week lessened the volume which transactions during the past few weeks aggregated. While there was some activity remaining which involved ware for jobs that have reached the fixture setting point, this outlet, too, seemed to have moderated, so that with jobbers giving as little attention as possible to their holdings a quieting down in the enameled ware market was felt generally throughout this territory. No announcement of a change in prices has been made by makers. Factory shipments seem to be satisfactory.

Pottery

The week disclosed no new aspects of the pottery situation in this territory. Potters did little in the way of interesting distributors in new purchases. The extent of the interest of jobbers centered around the needs of their customers and only when this supply could not be drawn from their own reserves was the producer requested to make shipments. Demand from master plumbers moderated to some extent, thus lending its share to the limited activities of the week. Prices from the standpoint of manufacturers remain unchanged. Plants are filling shipment requests promptly.

Plumbers' Brass Goods

The general attitude of the wholesalers in the Middle Atlantic territory, during the seven days which this report covers, toward placing cast and tubular brass business was that of indifference. When approached by manufacturers on the matter of first quarter requirements, delivery on which is to begin after January 1, there was limited response. Shipments leaving factories amounted almost entirely to releases which involved materials intended for specific jobs. Master plumbers' interest was also in a measure limited when a comparison is drawn with the rate at which brass goods moved into consumption a few weeks ago. There was, however, nothing about any phase of the market to detract from the brightness that has for some time characterized the future. Factories are making shipments about as they are wanted. The price situation has lost none of its stiffness and no change has been announced.

Range Boilers

Practically the only interest shown in range boilers over this seven-day period by jobbers was that dealing with after the first of the year delivery. Most jobbers seemingly are in position to take care of the demands of their trade from their stocks. This demand right now is not particularly heavy. The prices incorporated in the last sheets of manufacture seem to have a strong leaning toward firmness. Makers are maintaining a good delivery service.

Boilers and Radiators

The major portion of the boiler and radiator movement in the Middle Atlantic territory during this seven-day period was comprised of shipments to jobs that were ready to receive heating materials. The engagements which jobbers made for stock replacements were negligible. With the expiration of the time limit during which jobbers could book at the old prices, manufacturers are closely scanning all orders placed. In many instances they are checking jobs closely, each of which is required to be accompanied by a complete statement of all the facts of its location, name of contractor, architect, etc., before it will be entered. No further change in prices has been made by makers. Shipments are made promptly.

CENTRAL WEST

Construction Tops Last Year's Mark—

New construction started in the Central West during the first eleven months of this year has reached a total of $1,814,315,400, being an increase of 10 per cent over the amount started during the corresponding period of last year and a gain of almost $1,500,000 over the amount started during the entire year of 1927, according to F. W. Dodge Corp. This district had $136,100,800 in contracts for new building and engineering work during November, which was the second highest November contract total for the section. It was 12 per cent in excess of the total for the same month of last year, but there was a loss of 12 per cent from the total for October of this year.

Where plumbing and heating materials are concerned, little of a fresh nature marked the week's business. Materials are moving from jobbers' stocks into consumption at a more or less irregular pace and, with most wholesalers already working on inventory, shipments leaving manufacturers' plants are, of course, relatively light. Greater activity is evident in heating materials than in plumbing goods, but the former, too, is commencing to feel a tapering off in contractors' requirements. Most wholesalers are well enough stocked to carry them over until next year, but manufacturers are in a position to meet any emergencies promptly. No word of changes in manufacturers' prices to their distributors was received during the past seven days.

Soil Pipe

Little in the way of freshness developed in the soil pipe market during the weekly period covered by this report. Shipments leaving manufacturers' plants do not total high, and, as usual at this time of the year, producers are putting their plants in shape for another year's grind and wholesalers are commencing to count their holdings. All of this, of course, tends to confine current business mainly to immediate needs. Foundry stocks are large enough to insure prompt attention to orders. No price changes have been announced.

Pipe—Steel and Wrought Iron

While shipments of wrought iron pipe in this district are not as heavy as during November, some reports indicate that business is better than at the end of last month. Jobbers are not building their stocks and orders reaching producers marked for immediate shipment are ordinarily to take care of current requirements. Steel pipe demand, according to manufacturers' representatives interviewed, is holding at about a pace which has come to be expected at this time of the year. Both wrought iron and steel pipe mills can ship promptly. Price sheets of manufacturers have not been changed.

Fittings

Where fittings are concerned, wholesalers are following about the same tactics as in the case of the other major commodities and withholding the taking-in of fresh stocks

until after inventory. Contractor demand is holding at a fair seasonal level. Producers apparently find no difficulty in shipping orders as requested. Prices from manufacturers to wholesalers have not been changed.

Enameled Ware

Wholesalers, almost without exception, are in possession of large enough stocks to easily see them through the inventory period, and, as a result, little business is reaching manufacturers for immediate shipment. Although totals have not yet been compiled, it seems from most reports that the year is going to line up fairly well from a volume standpoint with 1927. No price changes were announced during the week by producers.

Pottery

About the same conditions are found in the pottery field as apply in the case of enameled ware, and, with the majority of distributors holding large enough stocks to see them through the inventory period, little new business, especially for immediate shipment, is reaching potters. No changes were made in manufacturers' sheets during the week, and staple items are easily available at plants.

Plumbers' Brass Goods

While cast and tubular brass goods salesmen find business fairly good, a certain amount of spottiness was nevertheless apparent in business during the week. Reports from most manufacturers indicate that the year will close with volumes possibly a trifle below 1927, although there are a few producers who feel their totals will run a little better than for last year. Factory shipments are quite prompt, and manufacturers' prices to wholesalers have not been changed.

Range Boilers

Nothing of an important nature marked the range boiler market during the past seven days. Wholesalers, with inventory at hand, are adverse to taking in fresh material, and, as most jobbers are well enough stocked to carry them over the first of the year, little new business is reaching manufacturers. Factory shipments are not being delayed. Prices from manufacturers to wholesalers have not been changed.

Boilers and Radiators

While demand on manufacturers is not as heavy as it was at the opening of this month, most reports indicate that business in the heating field is still maintaining a healthy pace. Manufacturers' stocks are large enough to make prompt shipments the general rule. No price changes have been announced by makers.

NEW YORK

Building Outlook Is Good—

Notwithstanding the fact that the Metropolitan New York area suffered in the matter of contracts awarded when a comparison is made with the record established during the last week in November, the new year will be given a better start than 1928 was given by the preceding twelve months. This is due to the construction intensity that has gone forward during the past few months, and from which the plumbing and heating industry will be afforded material business during the winter months.

Wholesalers are preparing for the business of the new year and are absorbed with inventories and credits. While the credit situation seems to have lost some of its more serious aspects it is still of enough moment to demand rather drastic action on the part of a large number of the jobbers in this territory. While some houses are practically prepared to receive their initial shipments for 1929, few have actually called for the materials intended to bring the new stocks to the point that has characterized their normal holdings. Manufacturers are able to assemble orders without loss of time. The price quotations of makers seem to retain all of the firmness which has developed during the last few months.

Soil Pipe

The Greater New York territory has shared proportionately in the matter of tonnage consumption gains this year has witnessed over 1927 in soil pipe. The difference is quite likely to exceed 10 per cent, in the opinion of some sellers. During the seven days that have passed since the last weekly review this commodity has been riding along smoothly, although demand from the master plumber is far from excessive. There has been no further change in prices, which are reported free from irregularities. Deliveries by foundries are satisfactory.

Pipe—Brass, Steel and Wrought Iron

Wholesalers are placing pipe business now in a more moderate way than they have heretofore this year. The only pipe of any kind moving into their possession is to cover emergencies. Brass pipe demand has modified perceptibly and jobbers seemed capable of handling from their stocks orders placed with them. Demand for steel pipe during the week was light in comparison with what it was 30 days ago. Several jobs of considerable proportions reached the stage where the delivery of wrought iron pipe was necessary. Mills on this account moved some tonnage. Manufacturers have not disturbed prices and shipments are made with dispatch.

Fittings

Apparently the movement of fittings into this territory centered around brass types. This even was not particularly significant as the average jobber required little material for stock. Limited quantities were involved in the purchases made by contractors from their sources of supply. Factories had no difficulty making deliveries that were entirely satisfactory. No announcement of a price change has been made by producers.

Enameled Ware

Most wholesale houses seem to have enough enameled ware to carry them over the end of the year, even though few if any have stocks that are in any way broad. There was, however, some ordering of ware for projects that will not be ready for it until a later date. Current demand from master plumbers was absorbed by jobbers without the need of calling on manufacturers for deliveries to any great extent. Prices remain unchanged where manufacturers are concerned. Deliveries are made promptly.

Pottery

The pottery requirements of contractors were somewhat lighter than they have been in many months. Reports, though, covering the demand of wholesalers were rather mixed in view of the fact that some manufacturers indicated a fair amount of business was forwarded, while another contended shipments totaled "good." Buildings on which contracts for fixtures are about to be let occupied the attention of most salesmen in this territory during the week. Little, however, was done in the way of signing orders. Potters' prices remain unchanged. Shipments are made promptly.

Plumbers' Brass Goods

The New York offices of both cast and tubular brass factories are going after first quarter business. Their efforts are meeting with considerable success. Factory shipments to jobbers' stocks were in no way heavy during the seven days this report covers. Plumbing contractors showed a little less interest in brass goods, but at the same time jobbers were drawn on fairly well. Shipping requests are

met promptly by makers. The price situation has lost none of its stiffness where manufacturers are concerned.

Range Boilers

Jobbers for the most part were able to supply from their range boiler stocks a large portion of the needs of master plumbers without seeking aid from factories. Consumption is quite low at this time; as a result there is little current buying. Manufacturers have adequate stocks and therefore shipments are uncurtailed.

The Stock Market

Par Value	1928 High	1928 Low	Range for Week Ending Dec. 15, 1928	*	High	Low	Close
NP	90½	59	Air Reduction Sales Co.	A	85⅞	81	85
25	191¼	130⅝	American Radiator Co., com.	A	187½	173	184
100	150	141½	American Radiator Co., pfd.	A	141½	141½	141½
25	114	82½	American Rolling Mills Co.	B	96	89¾	89¾
50	116½	53¾	Anaconda Copper Mining Co.	A	109⅞	96⅞	105⅛
NP	86¼	51⅞	Bethlehem Steel Co., com.	A	86¼	74½	80⅜
100	125	116½	Bethlehem Steel Co., pfd.	A	122½	121	122½
NP	62⅜	27½	Brunswick-Balke-Collender Co.	A	51¾	46½	50
NP	203¾	90½	A. M. Byers Co., com.	A & E	191¼	160	180½
100	115	108¾	A. M. Byers Co., pfd.	A & E	115	115	115
100	140	128	Century Electric Co., com.	F	130	130	130
100	106	101	Century Electric Co., pfd.	F	103	103	103
50	6	3	Chicago Nipple Mfg. Co., "A"	B	5	4⅜	5
50	3	1¼	Chicago Nipple Mfg. Co., "B"	B	1⅜	1⅜	1⅜
25	50	45	Crane Co., com.	C	48	48	48
100	122	118¾	Crane Co., pfd.	C	120	120	120
100	94	67	Detroit Brass & Malleable Works	D	70	70	70
100	109	109	The John Douglas Co., pfd.	H	109	109	109
20	23	17	Eagle-Picher Lead Co.	H	18	17⅛	17⅛
NP	54	32½	Fairbanks, Morse & Co., com.	A	44	42¼	43⅜
100	114¾	104	Fairbanks, Morse & Co., pfd.	A	110¼	110¼	110¼
NP	52	27½	Fulton Sylphon Co.	B	52	46	52
NP	12½	8½	Greenfield Tap & Die Corp.	B	12	12	12
NP	194¾	96¼	Johns-Manville Corp., com.	A	179¾	159	171
100	122	118½	Johns-Manville Corp., pfd.	A	120½	120	120½
100	160	150	Jones & Laughlin, com.	A & E	154	154	154
100	124¼	119⅛	Jones & Laughlin, pfd.	A & E	121½	120⅜	120⅜
NP	53	30	Minneapolis-Honeywell Reg. Co., com.	B & C	51	49	50
100	126½	98	Minneapolis-Honeywell Reg. Co., pfd.	B & C	120	120	120
NP	57⅞	31½	Modine Mfg. Co.	B & C	53	50	53
NP	42	32	F. E. Myers & Bro. Co., com.	G	37	37	37
100	105⅜	104½	F. E. Myers & Bro. Co., pfd.	G	104½	104½	104½
100	136	115	National Lead Co., com.	A	133	118¾	118¾
100	147¼	139	National Lead Co., pfd. "A"	A	140	140	140
100	127	112½	National Lead Co., pfd. "B"	A	119½	118	119½
NP	40⅜	14	National Radiator Corp., com.	A	17	16	16¾
NP	90½	45	National Radiator Corp., pfd.	A	42	41	41
5	34½	24½	Herman Nelson Corp.	B	26	25½	25½
NP	46	19½	Neptune Meter Co., "A"	B	19¾	19¾	19¾
100	109	104	Ohio Brass Co., pfd.	G	105½	105½	105½
NP	100	85½	Ohio Brass Co., "B"	B & G	90	90	90
100	101½	101	Penberthy Injector Co., pfd.	D	101½	101½	101½
NP	27	14⅛	Richmond Radiator Co., com.	B	14⅛	14½	14⅛
NP	40⅛	32¼	Richmond Radiator Co., pfd.	B	35⅛	33	35⅛
NP	57¾	26	Spang, Chalfant & Co., com.	A	54⅜	48¼	50
100	100	97	Spang, Chalfant & Co., pfd.	A	97¾	97¾	97¾
NP	51	34	Standard San. Mfg. Co., com.	A & E	48⅞	45⅝	48⅞
100	128	118	Standard San. Mfg. Co., pfd.	A & E	120	118	120
20	53	38	U. S. Cast Iron P. & F. Co., com.	A	42	38¾	41
NP	19½	18	U. S. Cast Iron P. & F. Co., 1st pfd.	A	18¼	18	18¼
NP	19½	18	U. S. Cast Iron P. & F. Co., 2nd pfd.	A	19⅛	19	19
NP	48	38½	U. S. Radiator Corp., com.	B & D	40	40	40
100	107½	101	U. S. Radiator Corp., pfd.	D	102	101½	101½
100	63⅞	27	U. S. Rubber Co., com.	A	42½	38¾	41
100	109⅜	55	U. S. Rubber Co., pfd.	A	74⅝	69¼	73¾
100	172¼	138⅝	U. S. Steel Corp., com.	A	156¾	151	151⅜
100	147¼	138¼	U. S. Steel Corp., pfd.	A	141¾	141¼	141¼
NP	26⅞	14¼	Walworth Co.	A	21	19⅛	20½
NP	52	20½	Wayne Co., com.	B & C	27⅛	20½	27⅛
NP	52	40	Wayne Co., pfd.	B & C	42	40	40
100	96	72	Wheeling Steel Corp., com.	B	92	92	92
100	126½	125	Wheeling Steel Corp., pfd. "A"	B	126½	126½	126½
100	135½	135½	Wheeling Steel Corp., pfd. "B"	B	135½	135½	135½
NP	23⅞	6½	Williams Oil-O-Matic Htg. Corp.	C	21¼	19	20½
NP	108	83½	Youngstown Sheet & Tube Co.	A	104	97¼	101⅜

*Where listed—

A—New York Stock Exchange
B—New York Curb Exchange
C—Chicago Stock Exchange
D—Detroit Stock Exchange
E—Pittsburgh Stock Exchange
F—St. Louis Stock Exchange
G—Cleveland Stock Exchange
H—Cincinnati Stock Exchange

The Metal Market

	Dec. 18	Average Nov., 1928	Average Sept., 1928	Average 1927
PIG IRON—				
No. 2 foundry, Chicago, Furnace	$20.00	$20.00	$18.25	$19.66
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.90c	1.95c	1.90c	1.83c
Blue annealed sheets, No. 10, Pittsburgh, per lb.	2.10c	2.05c	2.00c	2.20c
Black sheets, No. 24, Pittsburgh, per lb.	2.85c	2.80c	2.65c	2.91c
TIN—				
Straits tin	50¼c			
LEAD—				
Chicago	6.20c			

The Old Metal Market

Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	18 c	Copper, light	12 c
Block tin	46¼c	Copper, uncrucibled wire	13½c
Brass, light	7½c	Faucets and valves	10 c
Brass, heavy mixed	8½c	Lead, heavy	5.50c
Brass, red	11 c	Solder joints	9 c
Copper, crucible	13¾c		

NOTE: Prices are those quoted on Tuesday of this week.

Boilers and Radiators

This has been one of the busiest weeks of the year for most manufacturers of boilers and radiators. They are occupied with the sorting, classifying and investigation of a rather wild influx of orders from jobbers attempting to protect themselves against the recent advances. Makers, it is reported, are rigid in their actions regarding entries in order to avoid giving undue coverages and yet render customers fair treatment. Deliveries are going forward from the warehouses of producers in a satisfactory manner. No further change in prices has been made.

NEW ENGLAND

Factory Shipments Are Spotty—

The week just passed showed considerable decline in movements of plumbing and heating materials from sources. While consumption requirements are still keeping up well, when the lateness of the season is considered, jobbers have been able to gradually liquidate their stocks of most all commodities and at the same time to satisfy with alacrity their customers' needs. With inventory-taking now only a few days ahead, wholesalers are coming into the market only for materials for which they have definite orders from contractors and which will be moved from their warehouses before the end of the year. Local warehouses of makers are experiencing quite steady sales in small lot dispositions as jobbers' supplies of various items become exhausted.

While consumption demand has become less regular since the first of the month than it was up to that point, it is by no means inactive. Wholesalers generally anticipate the continuance of good business through the months of January and February of next year and have substantiated their beliefs by contracting for good-sized shipments of most all classes of materials from sources which specify delivery dates from January 1 to March 15. Price conditions, both in manufacturing and wholesaling mediums, are not varied over those which obtained a week ago. Producers are effecting deliveries satisfactorily.

Soil Pipe

Both plumbing contractors' and jobbers' needs during the week just passed were rather light and indicated a

considerably lessened interest in this commodity. Construction in general is now at the point where but little soil pipe is wanted and wholesalers are consequently inactive in so far as their dispositions of this item are concerned. Stocks have been thinned out as the first of the year approaches and foundries have naturally been deprived of any real shipments during the month thus far. Makers are not in heavy production for they have ample reserves on hand to effect deliveries without delay. No price changes have been announced by manufacturers.

Pipe—Brass, Steel and Wrought Iron

Inasmuch as activities in the heating field were not retarded during the past seven days, withdrawals of steel pipe by contractors from jobbers' warehouses continued to give this commodity a prominent place in the field. Distributors' sales of wrought iron pipe are not what might be called extensive and movements of brass pipe into consumption are likewise of gradually reduced volume. Not including replacement orders, which however did not assume large totals, mill forwardings during the week to jobbing points were light. No delivery extensions are reported by makers. Price quotations from sources were not changed.

Fittings

Buying on the part of master plumbers during the week of brass, drainage and malleable fittings was not particularly spirited, but wholesalers' dispositions of heating fittings continued quite steadily. Orders being placed by jobbers with producers, with the exception of small necessary replacements, are mostly for delivery after New Years. Wholesalers' bins are being thinned out, preparatory to stock taking, and are augmented only when delivery service to customers might seem to be in danger of impairment. Factories are in position to forward all classes of fittings to the satisfaction of distributors. Makers' prices were not changed during the week.

Enameled Ware

Some business is being placed with makers for early year delivery, but distributors are more concerned with taking stock and seeing to the upkeep of their present inventories so that master plumbers' needs will be well attended. In so far as stock maintenance is concerned, makers' local warehouses presently play a more important part than do sources. Installations of enameled ware are comparatively substantial for this season of the year and there is every indication, in the opinion of most sellers, that they will continue to be of good volume for some weeks yet. Prices are firm, no revisions in makers' quotations having been reported. Deliveries are generally prompt.

Pottery

Developments at the fixture setting stage are absorbing fair quantities of staple and special pieces. Jobbers at this time are closely regulating their buying and are taking in only sufficient ware to tide them over the last few weeks of December. Pottery representatives appear satisfied with the progress they are making in securing wholesalers' specifications for 1929 delivery. Staple pottery is being forwarded from sources as requested. Makers' prices show strength, no changes having attended the week.

Plumbers' Brass Goods

Many brass salesmen have been quite successful in closing contracts with jobbers for the latters' requirements for the first quarter of the coming year. Contractor demand for both cast and tubular products, while slightly reduced over last month, is still accounting for seasonally active turnovers of wholesalers' stocks. These are being kept well assorted, but quantities are steadily undergoing re-

(Continued on Page 85)

For complete satisfaction insist on the

Genuine Barnes

cuts true and lasts a life time

When you pay your good money for a pipe cutter, you have a right to expect complete satisfaction.

The *Genuine* Barnes gives you just that.

In our plant each cutter is made with precision and care. And before it leaves our plant, every cutter is *hand tested on pipe.* Each cutter-wheel is a steel drop forging—not turned from bar stock.

You'll find this red tag on every Genuine Barnes

These things count. They explain why, for 51 years, keen buyers of pipe-cutters have consistently specified "The *Genuine* Barnes" . . . . made by The Barnes Tool Company.

Get The *Genuine* Barnes from your supply dealer. Comes in eight (8) sizes to cut all pipes from 1/8 in. to 12 in.

The Barnes Tool Company, Inc.

Creators of the Genuine Three-Wheel Barnes

New Haven ' ' ' Conn.

Let's Find the Difference in Venting Costs

An Unusual Plumbing Problem

A COURSE IN PLUMBING

The Plumbing Problems and Schoolmaster articles are virtually a post-graduate course in plumbing. The Schoolmaster proposes a subject for discussion or a problem for solution. The subject or problem is published in "Domestic Engineering." Readers send in their discussions of the subject or solutions of the problem. The Schoolmaster then comments upon the discussions or the solutions in another article. This plan frequently has been spoken of as the greatest single factor in the advancement in plumbing practice.

All that is necessary in order to "join" this conference is to send in a solution of a plumbing problem or your views on the subject presented. Every drawing sent in should be as good as the sender can make it, but he should not hesitate because he cannot draw for each plumbing drawing must be redrawn in India ink so it can be reproduced and printed. Every reader is urged to enter this plumbing conference and to send in subjects for discussion or problems for solution. Each drawing sent in should be identified by writing on it the name and address of the sender and the date of the issue in which the problem appeared.

THE DRAWING problem is to be a bit different.

In Fig.1 we give the first and third floor plans and in Fig. 2 the second floor plan for some public toilet rooms, located one above the other on three floors of a building.

The Class member is asked in the first place to locate the stacks, knowing that he is to use circuit and loop venting wherever possible. Follow the practice that you favor. If you favor connecting up a battery of lavatories with circuit vent do so, and if not, show the work as you think it should be done. Make a cellar plan, and show all the detail you are able to on each floor plan.

The big point in this problem is the making of elevations to show the work in the clearest possible manner. If you do this with straight mechanical drawing, our advice is to make a separate elevation of each battery, and on the elevation that shows the main soil stack show where each horizontal branch to the batteries of fixtures is to connect, and likewise show on the main vent stack where each horizontal branch is to connect. Following this plan should make your elevations easy for the workman to follow.

If you are to use isometric, you can do any one of several things. You can show the entire work in one elevation. If you do this, separate the floors sufficiently, so that the work on one floor will not be confused with that on another.

You can also make an isometric of each single battery of fixtures, and you can make a separate isometric of each floor. The latter plan looks good to us, but we hope all three methods will be followed, giving us some idea of the advantages and disadvantages of each, in your opinion.

And Then Let Us Work This Out

Instead of handing out one of our regular problems, we have an idea that it would be a most interesting thing to make a comparison of this job provided with circuit and loop venting, and the same job done without any of this type of venting used, but using the common method of venting. We do not recall having seen a real comparison of cost as between these two methods of construction. You can go as far as you please in making this comparison. You can work it out in your own way. To those who are interested to work it out, we would suggest that you work out a complete list of stock required for roughing the job in the two different ways, and then if you can carry out the cost against the various roughing items, we would have some interesting figures.

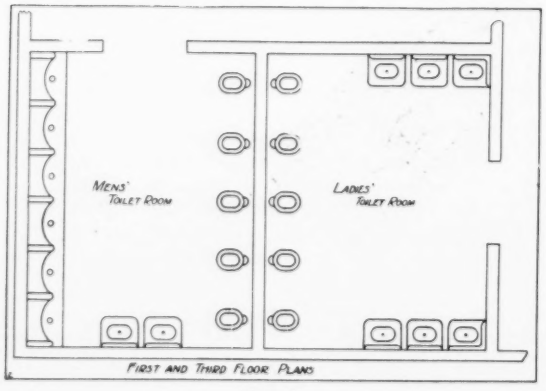


Fig. 1

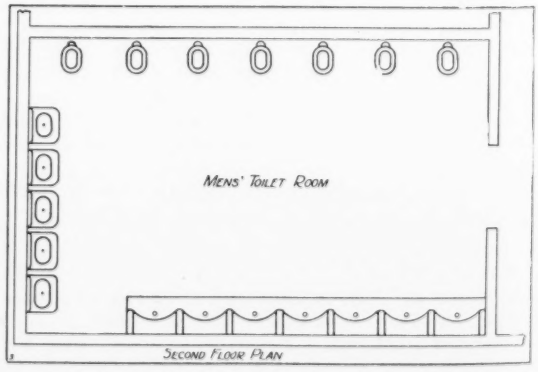


Fig. 2

"We got the Garrett Building Contract *by recommending a lasting pipe system!*"

"I TELL you, Stanford, we'd never have come within a mile of that Garrett Building job if it hadn't been for the little bit of sound advice we put in about Byers Pipe. You know the competition we had. Long & Lang thought very well of us, and said so; but we weren't the lowest bidders, and what could they do? This idea of an installation that would last as long as the building, though, put a different face on the whole matter."

"I remember something about that. What did we tell 'em the added cost would be?"

"Why in their case, it was a little more than usual. We told them the general fact, that a wrought iron installation, when completed, runs about 5% higher. When we came to figure their specifications we found the difference was 8%. But even that was so ridiculously small, for the extra value they were getting, that they closed with us right away. They're well satisfied, too, I happen to know."

"Would they say a word for us, do you think?"

"I'm sure they would. Their engineer brought the subject up of his own accord the last time I saw him. He said the way we handled our estimates at the time, and the whole record of the installation since, were very much to our credit."

"All right, let's treat this High Tower job in the same way. Submit alternate bids. Make 'em understand that we can put in cheap pipe if they want it—as cheap as anybody,—but that we recommend a permanent installation and that's where we can show them real economy. Then refer to the Garrett Building people for an opinion."

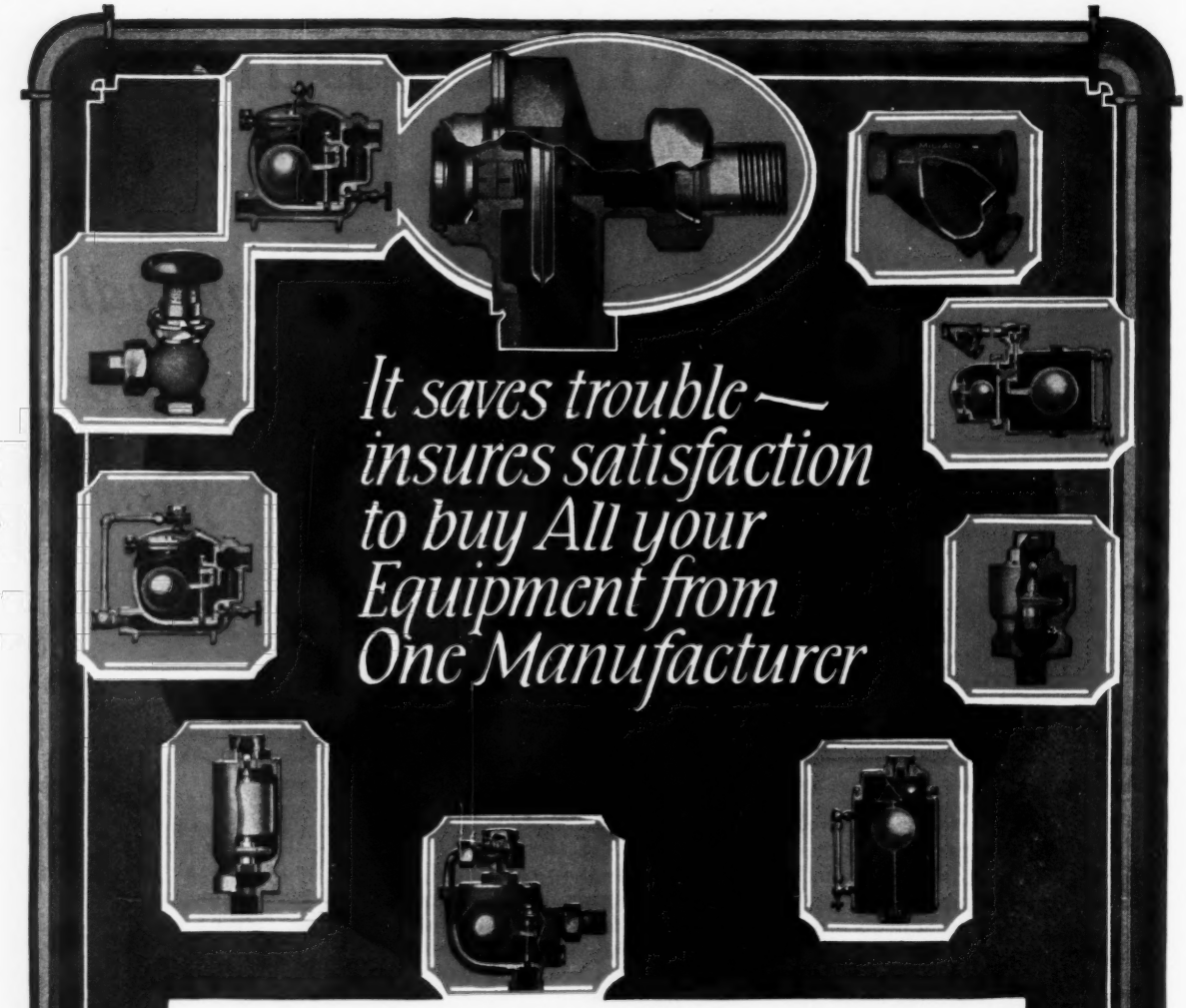
"All right, Mr. Hamilton, we'll do just that. We can't lose anything by it anyhow; and I think it will give us the best possible chance of landing the contract."

A. M. BYERS COMPANY
Established 1864 Pittsburgh, Pa.
Distributors in all Jobbing Centers

To the Plumbing Contractor:

A supply of *Alternate Bid Labels* will be furnished you on request. Simply paste one on any piping bid, to indicate the small extra cost if Byers is used. You'll be surprised at the welcome this receives.

BYERS PIPE
GENUINE WROUGHT IRON



WHY SHOP around when you can buy ALL you need in heating systems and specialties and get ONE guarantee from ONE manufacturer?

Today, the Milwaukee Valve Company, backed by 27 years of specialization in the heating field, is fully organized and equipped to render this unusual service to the heating industry.

In addition to making equipment for every size and type of heating installation the line also includes an unexcelled variety of "Milwaukee" standard brass valves, packed type radiator valves, gate, globe, angle, check valves, etc.

Get the habit of specifying and installing MILVACO *exclusively.*

Write for complete information Dept. M.

MILWAUKEE VALVE COMPANY

Manufacturers of

[*Steam or Hot Water*] COMPLETE HEATING SYSTEMS [*Vacuum or Vapor*]

Milwaukee, Wisconsin

OFFICES IN ALL PRINCIPAL CITIES

Those who care to do so could go further, and make an estimate of the labor also.

We hope some of you will do a thorough job in comparing the cost of the two methods.

THE MORE THE DRAWING TELLS THE MORE IT SELLS

EVERY contractor secures work through a species of competition; perhaps not all of his work, but certainly some of it. If a contractor is only taking work which comes knocking at his door and upon which he has no competition to meet, he is not securing all the business to which he legitimately is entitled. Even the best of owners and architects feel that in justice to all concerned at least a "check" price should be secured on any contract work which may be awarded.

Therefore it may be assumed that every contractor has times either more or less frequently when he desires to put his best foot forward and to make his proposal carry weight. This being the case it only remains to decide upon the best method of doing this.

It has become a well recognized fact that the picture tells more and makes a more lasting impression on the mind of the casual observer than the printed work. Is it not more exciting to see the motion picture of a prize fight than it is to read about it in the paper? Is it not more enlightening to see a picture of a new type of plumbing fixture than to read its description, however much in detail such a description may be?

With this fact in mind the value of drawings in selling contracts may be readily appreciated. The drawings shorten the proposal because they convey visually more than could be described in any proposal of reasonable length. But first must be learned the knack of making an intelligible plumbing drawing; one which is easily comprehended by the layman and yet containing the necessary information for the architect. This is one reason why problems in plumbing drawings are so valuable.

WHAT IS PROCEDURE CONTROL IN WELDING PIPE?

THESE six requirements of a "procedure control" in the welding of pipe are:

A. Check of the Welders—To see that only competent operators are used. Further, that they prove their ability by successfully passing qualification tests, preferably tests assimilating the particular operation.

B. Selection and Inspection of Material—That only material suitable to welding is used and that proper welding rod is selected.

C. Design and Layout of Welded Joint—To insure that the joint is correctly designed for welding.

D. Preparation for Welding—To see that preparation and assembly are the best for welding.

E. Organization and Welding Technique—To see that the welding is carried on in the most satisfactory and economical manner and that the welding itself is correctly done.

F. Inspection and Test—To check whether the above items of the welding procedure have been followed and to see that proper welding results. The test of the completed work is an additional insurance that the welding installation will give satisfactory service.

It is important that welding materials be secured only from those whose recommendations can safely be depended upon and they should always be used in the manner specified by the manufacturer.

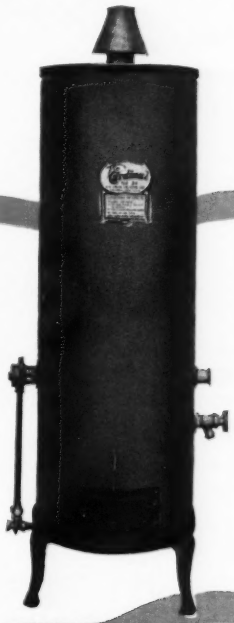
Procedure control in welding is advocated and used by many large heating contractors in the United States. They consider it necessary to the production of dependable welds.

Make Money
installing
OHIO HEATERS

Low first cost, low operating cost, and BIG plumber's profit. Write for our proposition *today.*

We sell through the Plumbing Trade exclusively

THE OHIO HEATER CO.
Columbus, Ohio, U. S. A.



$50
... and up

Low operating cost

A Heater for every job

15 to 1000 gallon capacity

OHIO
Automatic
WATER HEATER

RETAIL ADVERTISING SERVICE

$4.20 for twelve weeks' service. We send new cut each week. You take copy from this page.

Merchandising is so general among plumbing and heating contractors today that it hardly seems necessary to urge it upon the field. But to help those men who find that they are too busy to take care of advertising this page is published. We send a new cut each week for twelve weeks—for only $4.20. *All subscribers have to do is hand cut and reprint of this page (which we also send) to their local papers.*

Series No. 45

Should the Housewife be Efficient?

SHOULD she have time for that big job of hers—training her children? If there is any "profit" in family life it is in the raising of children who reflect credit on their parents. To give the mother the necessary time she should have efficient home equipment in the kitchen, the bathroom, the laundry; the heating plant should be automatic; hot water should be had by the turn of the faucet. We can help you put this efficiency into your home.

(In this space your Name, Telephone Number and Address)

NO more profitable activity can be indulged in than securing good publicity. Clip out this item and hand it to your paper.

EFFICIENT HOMES MAKE HAPPY CHILDREN

Efficient home equipment has a vital effect upon the lives of children, says Harry Brown, local plumbing and heating contractor.

"How can the mother who must drudge with out-of-date plumbing and heating equipment give the best and most lovable side of herself to her children? If every household task is made difficult by obsolete plumbing—if she must heat water by crude methods—if a heating plant demands her constant attention instead of operating automatically—she will be too tired to set an example of cheerfulness for her children.

"Happy children come from those efficient homes where the mother is a home manager rather than a household drudge."

Happy Children Come from Efficient Homes

WHY? Because where there is efficient equipment in kitchen, bathroom and laundry — where the housewife is not a drudge to out-of-date plumbing and a heating plant always needing attention—she has time for her children. After all, that's her big job. Let us help put more efficient plumbing and heating equipment in your home.

(In this space your Name, Telephone and Address)

BELOW is a sales letter which can be sent broadcast to your prospects and customers.

HARRY BROWN
PLUMBING & HEATING

Two Rivers, N. Y.,
December 22, 1928.

Mrs. Edward Jones,
Two Rivers, N. Y.

Dear Madam:

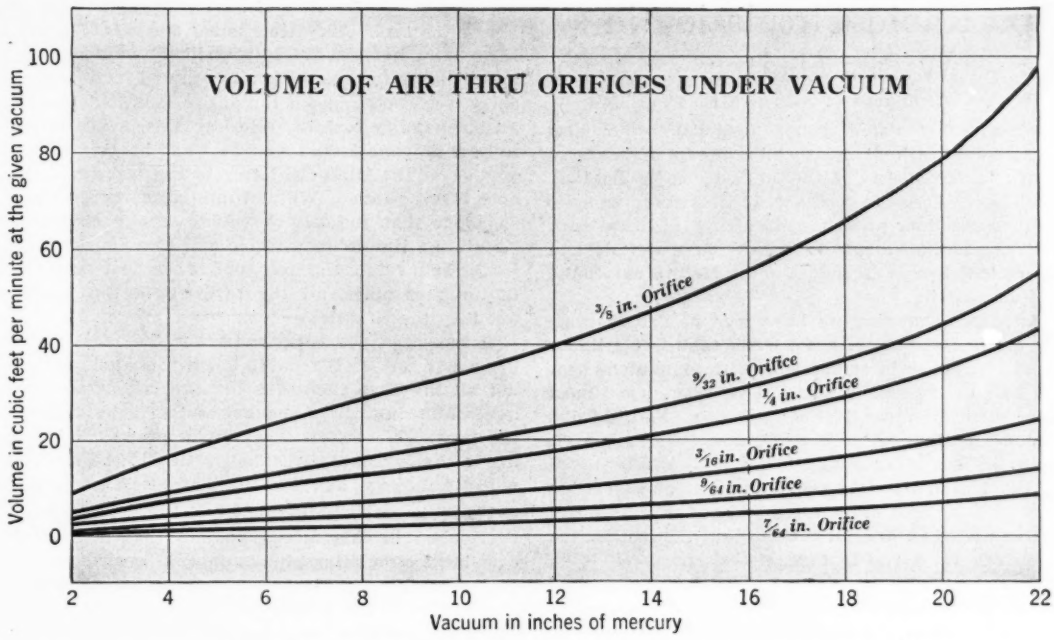
It is unquestionably true that the finest job on earth is the raising of a family which reflects credit on the home from which it came.

But we do not believe that into this task the mother of the family should throw herself indiscriminately. Like every big job, it must be planned, and observation tends to make us feel that too many women give too generously—not to the constructive side of the job, which is with the children, but to the extra effort required of them because their home equipment is not efficient.

If hot water is not to be had at the turn of the faucet; if the kitchen sink and the bathroom equipment is out-of-date, difficult to keep clean; if the heating plant is always requiring attention instead of automatically controlled—if extra effort is required for these things, how can the housewife present a cheerful attention to her children at all times?

We would like to talk over this matter of home efficiency with you—without the slightest obligation to you. Just telephone.

Very truly yours,
HARRY BROWN



Volume of air in cu. ft. per min. (at the vacuum referred to) flowing through orifices of specified size at different pressures

Jennings air capacity is quantitatively measured —*not guessed*

WHEN you install a Jennings Vacuum Pump in a return line steam heating system, you can do so with confidence that the Jennings Pump can be depended on to remove the specified amount of condensation and air for which it is rated.

Take Jennings air capacity, for example. This is quantitatively determined for each pump before it leaves the factory, by means of the specified vacuum which the pump is able to maintain through a thin plate orifice, 1/8 in. thick, with sharp edges and aperture of given diameter.

Jennings Pumps

THE NASH ENGINEERING CO. 41 WILSON ROAD, SOUTH NORWALK, CONN.

Too Rapid Circulation in Water Heater

(Continued from Page 51)

range boiler or hot water tank a "cylinder"; they also call a coupling a "socket" and a wall type of pipe hanger a "holdfast"; in fact, many of the trade terms in England would be almost Greek to the average American. In spite of this difference their problems are almost identical with those in America, although differences in materials and methods of installation introduce some factors not found in American practice.

For instance, from what we have seen of British practice they are inclined to use a hot water tank—or cylinder—of greater capacity in comparison with amount of heat than we do. In the second place, these tanks are almost always set vertically regardless of their size. And, thirdly, they seldom, if ever, put in a cold water tube such as is used with the American range boiler. It will be noted that in Mr. Mason's article the tank was shown setting vertically with the cold water coming in at the bottom and without the use of an interior tube so that the installation illustrated ran very true to form.

Now it can be readily understood that with an oversized tank or an undersized heater, which amounts to nearly the same thing from a relative standpoint, the time required to heat the whole tank would be longer than if only a smaller portion were heated. This would follow regardless of the size of circulation connections within reason. In other words, with a given heater it is possible to heat 10 gallons of water more quickly than 40 gallons, and Mr. Mason's idea was to provide some method of segregating this 10 gallons or so of water from the other colder water in the tank so as to permit a small quantity of hot water to be used before time enough to heat the whole tank had elapsed.

Whether his idea is practical or not is doubtful; we question the desirability of having to reset the valve on a hot water tank every time some one wants a bath or a little extra hot water. It very likely would be forgotten until the water was actually wanted and then a long delay would occur until the entire tank had been allowed an opportunity to heat. Besides this, a heater sufficient to heat the whole tank would—when heating only a small portion of the tank—be likely to run away with the load and form steam. We entirely agree with our correspondent that the use of valves of any character on a circulation line is undesirable and that covering the tank would help retain the heat, but if the heat were not there in the first place, all the covering in the world would not help the situation.

It has been our experience that the most satisfactory hot water service is secured when the whole tank is kept hot all the time and when the fire is banked over night never allowing all of the hot water to be drawn out of the tank. We believe the British practice is to carry a fire in the daytime only, thus starting in the morning with a bad handicap, and therein lies Mr. Mason's difficulty.

There is also another point that seems to have been overlooked in this discussion and that is the fact that over-large circulating pipes would, in a way, provide their own remedy. This is because circulation is governed by the height of the column of water and the temperature difference existing between the hot pipe and the cold pipes. Therefore any tendency to deliver cooler hot water into the tank would also tend to slow down the circulation owing to the lesser temperature difference between the two columns of water and the slowing of the circulation immediately begins to accomplish by natural means, the same end attained by Mr. Mason with the use of valves.

If there is anything in the argument on too-large circulation pipes at all, it would seem that this could be overcome more efficiently by using an orifice plate or by a short length of smaller pipe in the circuit rather than by the introduction of valves.

Indirect Water Heaters

THIS is one of a series of articles on indirect water heaters. An indirect hot water heater which can be used on steam, vapor, or even on hot water systems is described in the following.

This heater, which is illustrated in Fig. 1, consists of a cast iron shell in which is contained a single heavy gauge copper coil without joints and with the two ends expanded and rolled into the sleeves, being locked in this position by an eccentric flange and jamb nut which protects the joint against strains during installation.

These heaters have vertical water connections both for the coil and the shell and are made in eight sizes as given in Table 1.

Table 1

No. of heater..	0-30	0-40	1	2	3	4	5	6
Size of tank, Gals.	30	40	52	70	120	200	300	450
Diam., inches..	4¾	5¾	5¾	6⅝	6⅝	7¾	10¼	10¼
Length, inches.	10⅛	13	13	15⅝	23⅛	24⅜	25½	25½
Coil tappings..	¾	¾	¾	1	1	1½	1½	1½
Shell tappings.	1	1	1	1¼	1½	2	2	2

When larger capacities are desired a U-tube heater is recommended, this being shown in Fig. 2 and built in capacities ranging from 350 to 2,500 gallons.

A typical example of the use of the smaller style indirect heater is given in Fig. 3 where the installation between an ordinary steam boiler and a vertical hot water boiler is illustrated.

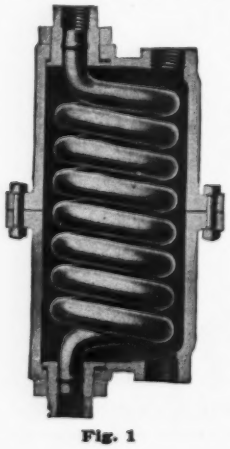


Fig. 1

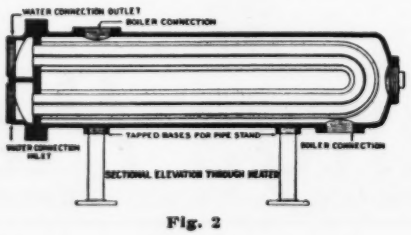
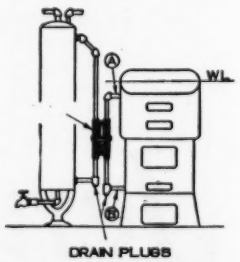
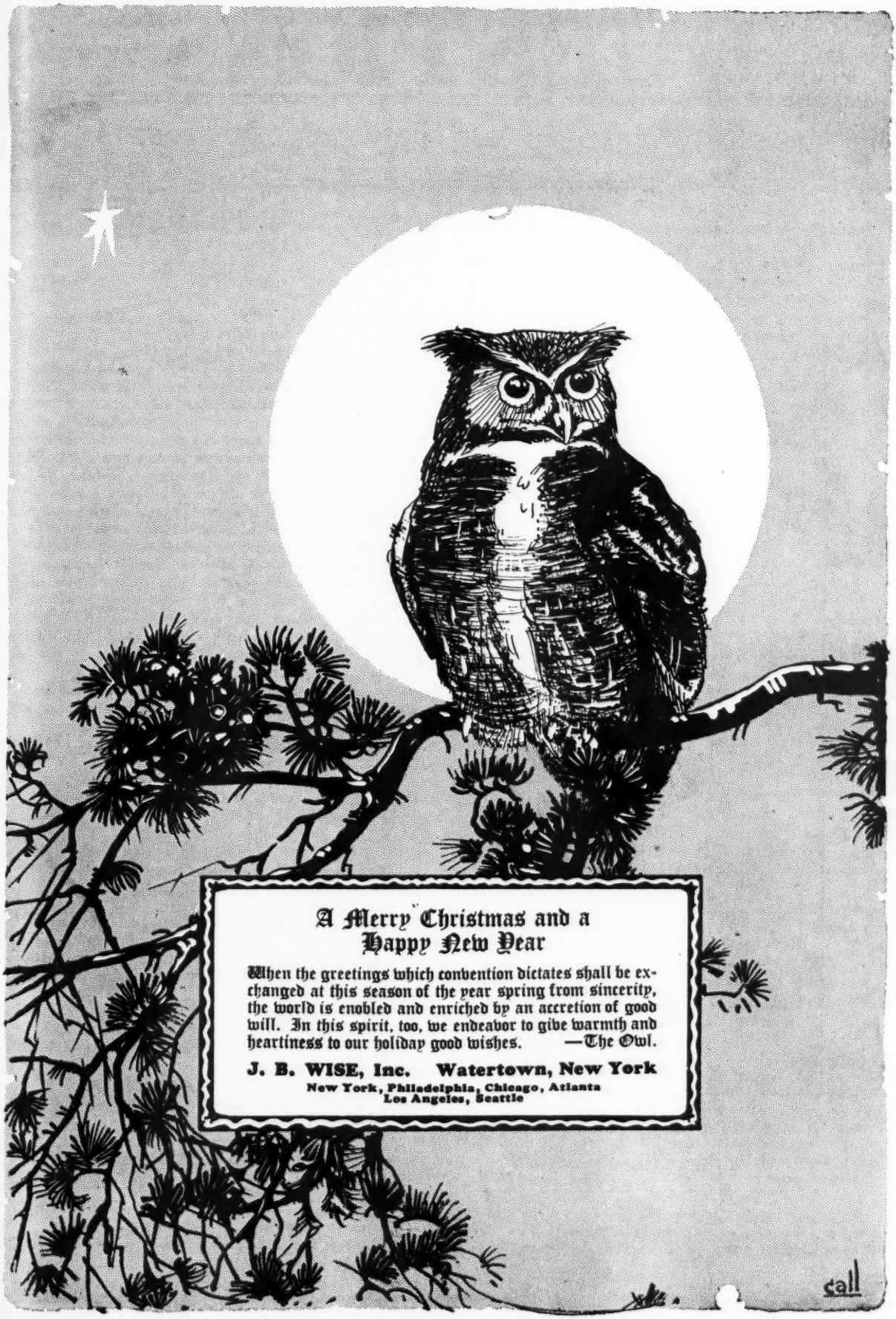


Fig. 2



AS CONNECTED TO STEAM BOILER

Fig. 3


A Merry Christmas and a
Happy New Year
When the greetings which convention dictates shall be exchanged at this season of the year spring from sincerity, the world is enobled and enriched by an accretion of good will. In this spirit, too, we endeavor to give warmth and heartiness to our holiday good wishes. —The Owl.
J. B. WISE, Inc. Watertown, New York
New York, Philadelphia, Chicago, Atlanta
Los Angeles, Seattle
call

QUESTIONS

ASKED BY READERS AND ANSWERED BY EXPERTS

WANTS LAYOUT FOR SOIL AND VENT STACK IN TALL BUILDING

Editor, "Domestic Engineering":—Will you have the kindness to give me a typical layout for a soil and vent stack in an eight-story building? We are permitted to use 4-inch soil stacks in such buildings in this city, even when there are offsets—one or more—in such stacks, and

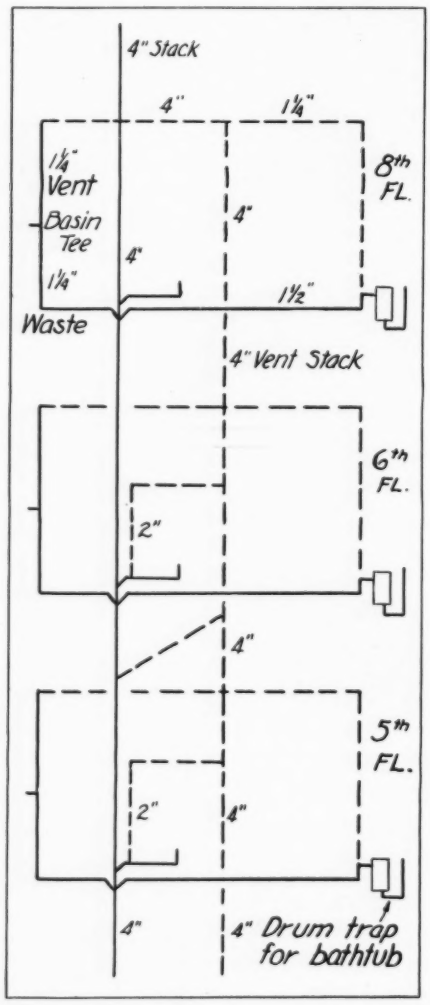


Fig. 1

fixture traps may be located a distance of 12 ft. from stack without the installation of a vent.

Massachusetts. B. S. S.

The accompanying sketch, Fig. 1, shows layouts of the top floor, the sixth and fifth floors. The sixth floor layout is typical of all floors except the top floor. The Y and eighth bend between 5th and 6th floor should be duplicated just below the first floor fixtures.

In this connection it will be of interest to note the following, in a recent code, about waste and vent stacks in high buildings:

"In the construction of waste and vent stacks in buildings more than four stories in height, where such stacks receive the discharge from and ventilate any fixture with a trap exceeding 2 inches in diameter, each such vent stack shall tie into or connect with the waste stack which it serves, with a Y or eighth bend below the first floor, where practicable, and where not practicable to do so, at a point to be approved by the department of buildings, and such a connection shall always be made below the lowest fixture connected at any time to any such waste stack above the basement floor, and each such vent stack shall also similarly connect into such waste stack with a cross connection at intervals above such lowest connection, so that not more than three floors shall intervene between any two such cross connections or between such lowest connection and the first of such cross connections above same.

"Each such lowest 'Y and eighth bend' connection shall be not less than four inches in size, where the height of the building is not less than ten stories in height.

"And where any waste stack is offset at any point, to avoid extending it through a room below, and one or more closets are connected to such stack at a height of four or more floors above such offset, any fixture on the floor at which such offset occurs, which is to be connected to such stack, shall be connected thereto at a point not less than 10 ft. distant from the base of the vertical portion of such stack above such offset, or into the vertical portion of such stack below such offset."

A REST ROOM PLUMBING PROBLEM

We have received the following letter from one of our subscribers:

"Editor, 'Domestic Engineering':—

"Being a subscriber to your valuable journal, I would like to ask you a question respecting a job I have just roughed in. This is a small town without a code. The job I am referring to is a rest room in the town park.

"Will you please tell me if the way I have roughed in, according to my sketch, will be satisfactory? Should all the fixtures be flushed at one time, would there be any chance of siphoning any of the traps? Will you please send me sketch of how it should be done, if I am wrong? It has all been cemented in floor."

The work as already roughed-in, is shown in Fig. 1, and in many respects it is well done.

It is always difficult to know just how work can be installed unless one can see the floor plan, or can look the work over right on the spot.

We think the chief difficulty is that there is no 4-inch line passing through the roof. Reference to almost any plumbing code will show that at least one 4-inch stack

through the roof is demanded for any plumbing system installed.

In Fig. 2 we show another layout, and if the work was to be re-installed, we would recommend a layout something like this one.

A note on the original drawing shows the dimensions of the "shelter" as it is called, to be 12 feet by 21 feet by 18 feet high.

With the horizontal line travelling through a distance of 21 feet and over, the use of a relief vent shows good judgment, but we do not think it is necessary to run this

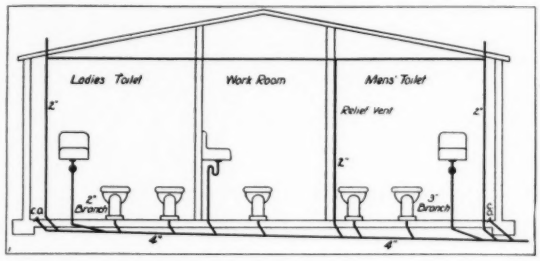


Fig. 1

vent both ways horizontally. For one thing, we wonder whether it would not be better to run the relief vent directly through the roof.

Another suggestion toward simplification would be the possibility of running the relief vent in the work room, either through the roof or as we show it, and connecting the lavatory into it. Connection of the lavatory in the men's toilet directly into the roof pipe, as we show it, also the same sort of connection in the ladies' toilet, if either or both were possible, would make an ideal job.

In all circuit or loop or relief vent work, it is excellent practice to connect a small fixture, such as a lavatory, directly into the rising leg of the vent. This not only vents the fixture in an excellent manner, but washes the

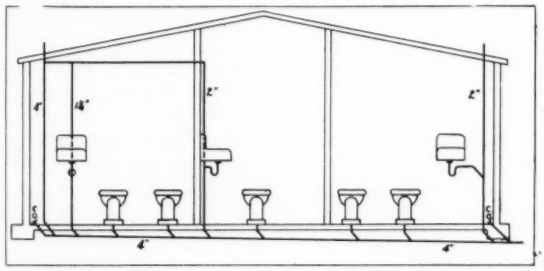


Fig. 2

foot of the vent, thus freeing it of any collection of rust.

If these things cannot be done, in the case of the three lavatories, then we think that each one should have a separate vent, a continuous vent, such as shown for the work room lavatory in Fig. 2.

The question is asked whether, if all the fixtures were flushed at the same time, there would be any danger of siphoning any of the traps. We think there would be such danger, and for that reason the three elevated fixtures should be vented. We are speaking now of correct methods. We have to remember, however, that there is no code governing this work. When it is desired to make such an installation still more sure against siphonage, without going to the expense of such alterations as we mention, it is frequently the custom to install non-siphon traps under the three lavatories.

We wish to say that for a small town which has no plumbing code, and we presume no other supervision or regulation of plumbing, the work as shown in Fig. 1 is better than will many times be found.

WILL ELECTRIC WIRE FROM RADIO HURT LEAD PIPE?

Editor, "Domestic Engineering":—Will you have the kindness to tell me if the electric wire from a radio outfit will shorten the life of lead service pipes?

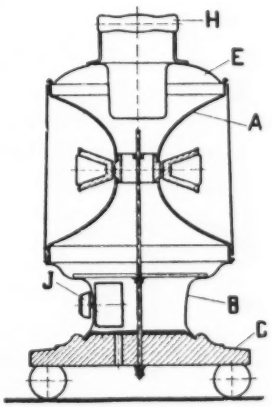
Nebraska. G. L. R.

It is hardly likely that the small amount of current from a radio outfit will have any effect on a lead service pipe.

Electricity is a big factor in the destruction of lead service pipe where there is a great amount of current, for example, close to street car lines or high tension lines. Such cases, however, are few and far between, when we consider the vast number of active electric current lines and the few cases of electrolysis in plumbing service lines.

A SWISS TYPE OF ELECTRIC HEATER

The modern tendency in heating is to endeavor to place heat where it is needed instead of attempting to heat the whole atmospheric contents of a room from floor to ceiling. Applications of this principal are found not only in this country but in European countries as well.



A typical example is a new electric heater made in Switzerland where hydroelectric power is inexpensive. A cross section of this heater is shown in Fig. 1.

Rays of the heat are reflected by a special type of metal mirror which projects the rays in horizontal directions. Around the narrowest part of the reflector are arranged a series of holes through which warm air passes.

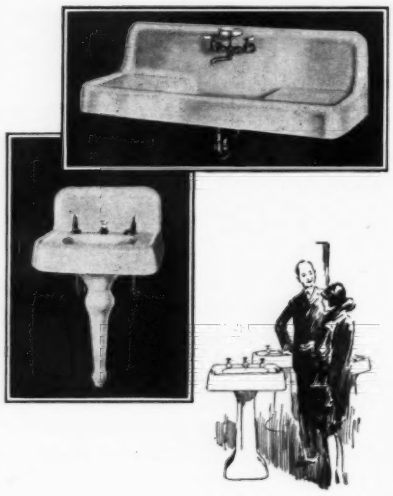
The polished reflector A, complete with generator, rests on an aluminum column B placed on a wooden plinth C. A receptacle E contains water for moistening the air. The cover is supplied with a handle H, which facilitates moving the heater. It has a regulator J, by means of which the owner can moderate the amount of heat transmitted.

Service Engineer Finds Cause for Draft Failure

On a recent heating job the heating contractor and several engineers admitted that they were unable to find a cause for the failure of the heating system.

Eventually a special service engineer was detailed and, in the course of a thorough examination, found the boiler and its attached equipment to be in perfect condition. Suspicion was finally directed to the base of the chimney, constructed of concrete blocks. It was then found that one of these blocks had been broken during the construction of the chimney, allowing a large amount of cold air to kill the draft. After this had been repaired, the plant worked perfectly.

Although tradesmen and even the mason who had built the chimney had been at a loss to diagnose the trouble, the symptoms were plain to the service engineer.



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RUNDLE
PLUMBERS' SANITARY ENAMELED WARE
BRASS AND IRON GOODS

The Mark that Has Won the Confidence of Buyers

Some Plumbing Troubles

(Continued from Page 40)

later he said, "Your employer wishes to speak to you." We eventually agreed that I should return to London on the Monday morning, commencing work not later than 9 o'clock.

THE TROUBLE FOUND

THE FIRST job was to cut out the cast iron bend beyond which the lead ball would not pass. There were two bends forming an offset, and fortunately I was able to get them out without breaking the joint which held them together. I found that when the molten lead had been run into the hub, a sufficient amount had passed into the 2-in. bend, to almost completely block the bore, only a very small opening being left through the upper part, as indicated at H, Fig. 3. About ten o'clock on the following Wednesday morning, I went to one of the partners and said, "The job is finished and all is quite satisfactory now, sir." "That's a damned good job," he answered, and, ———— withdrawing his hand from his pocket, gave me a dollar!

A few details concerning the cause of the trouble may prove to be of some service. When the work was new and the small opening, H, Fig. 3, was quite clear, the water was able to find its way through in the course of a few minutes, and as the basin was only used at rare intervals, all went well for a few weeks. But, the lavatory basin being the more accessible, the women who cleaned the office floors emptied their pails into it, and small pieces of floor flannel caught around the small opening and soon blocked it almost completely so that it took the greater part of a day for a single discharge from the basin to find its way through to the drain. Naturally the result of the slow passage of water through the blockage was that a few hours after the basin had been emptied, the waste pipe for a number of feet above the almost stationary water was clear, but the air in the pipe having no means of exit when the contents of the basin were next emptied, this latter discharge of water compressed the imprisoned air until a degree of compression had been reached when the air possessed a force considerably in excess of that exerted by the weight of the superimposed water.

This large excess of force enabled the compressed air to force the water back over the loop and along the vent to the outer air, its progress being impeded by the brass grating which it struck with hammer-like force, afterwards spreading out and descending to the roadway below, causing serious inconvenience and much annoyance to those people who happened to be passing at that moment.

The firm that carried out the work always supplied the best of materials, their earnest desire being to have such materials installed by the best of workmanship, but in this case, through a careless workman (the outward appearance of whose work would give a casual observer the impression that he was a highly skilled plumber), they suffered serious loss both in reputation and in money. So small was the quantity of the oakum which this careless plumber drove into the joint, that had it been of the proper material it would not have been sufficient to have made two boot laces. This was the cause of all the trouble.

Note: In Britain the ground floor is at street level, the first floor being the one above the ground floor. I am under the impression that in the United States these are known as the first and second floor, respectively.

THIS WEEK

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN

MERGER OF STANDARD SANITARY MFG. CO. AND AMERICAN RADIATOR CO. CONTEMPLATED

During the last few days reports have been current about a proposed merger of the American Radiator Co. of Chicago and the Standard Sanitary Mfg. Co. of Pittsburgh, Pa. In view of the great interest displayed in these reports a representative of this publication secured an interview with D. M. Forgan, treasurer of the American Radiator Co., in which he stated that negotiations are on between his company and the Standard Sanitary Mfg. Co. for a merger of the interests of the two organizations. Committees of both companies have been and are meeting to work out a mutual agreement on the consummation of such a merger, with nothing definite to announce as yet resulting from these meetings.

NATIONAL PIPE AND SUPPLIES ASSOCIATION TO MEET IN PITTSBURGH

The twentieth annual convention of the National Pipe and Supplies Association is to be held May 13, 14 and 15, 1929. The meeting will be held in Pittsburgh, Pa., and the William Penn Hotel has been selected as headquarters, according to an announcement from Bud Kennedy Hanson, secretary of the organization. William B. Bryar of Pittsburgh has been appointed convention chairman.

E. S. A. PLANS FEBRUARY MEETING

The next meeting of the Eastern Supply Association will be held at the Hotel Astor, in New York City, on February 13 and 14, it is announced by Secretary Frank S. Hanley.

CENTRAL SUPPLY ASSOCIATION TO HOLD SPECIAL MEETING IN JANUARY

According to a recent announcement from W. E. McCollum, secretary of the Central Supply Association, a special meeting of that organization has been called, to be held at the Hotel LaSalle, Chicago, on January 29 and 30, 1929. The executive committee called this special meeting to take the place of the regular February meeting. Sessions are to be held on both days from 10:15 in the morning, to 12:30, and from 2 to 4 p. m.

HOLYOKE WHOLESALER OPENS NEW SHOWROOM

The new headquarters and showroom of the Collins Plumbing Supply Co., Holyoke, Mass., was opened Friday and Saturday, December 14 and 15, at 130 Race street, at the corner of Cross street. A large representation from the trade was present for the occasion.

BUYS CALOROIL BURNER CORP.

A recent announcement from the International Burners Corp., 225 West Thirty-fourth street, New York City, states that it has purchased the assets and liabilities of the Caloroil Burner Corp., New York. The corporation will manufacture three sizes of oil burners, and will be under the former management of the Caloroil organization. The change took effect December 15, and no changes in policy of the former Caloroil company are to be made.

RESULT OF E. S. A. QUESTIONNAIRE ON CONSIGNED STOCKS

The Eastern Supply Association recently sent a questionnaire to its members for the purpose of learning their views on the practice of consigning stocks of plumbing and heating supplies to wholesalers.

In answer to the question, "Are you for or against consigned stocks?" 137 votes have been cast by wholesalers and manufacturers of plumbing and heating supplies, members of the Eastern Supply Association. Of these votes, 122 are on the whole against the practice of consignment. Only 15 are for it.

Among the wholesalers, 60 expressed unqualified disapproval of consignment, while 12 favor it. Among the manufacturers, 62 were opposed and only 3 in favor.

In addition, there were 14 who expressed mixed views, but who were on the whole opposed to consigned stocks as a general practice.

NORTHERN OHIO HAS NEW CRANE BRANCH HOUSE

Crane Co., Chicago, recently established a branch house and exhibit room at 6215 Carnegie avenue, S. E., Cleveland, Ohio. The new branch will carry a large stock of plumbing and heating supplies.

OPEN NEW BRANCH IN POUGHKEEPSIE

The Interstate Plumbing Supply Co., Inc., Albany, N. Y., recently opened a new branch at 161 Smith street, Poughkeepsie, N. Y. This is designed to serve the mid-Hudson

The new branch of the Interstate Plumbing Supply Co., at Poughkeepsie, N. Y.

section of New York State. The new building housing the branch is of reinforced steel and concrete, and is 70 feet wide and 180 feet long. The show windows, which are large, face on the Smith street side of the building, affording a view of the showroom, which is 35x70 feet in size.

The property is served on its entire length by a spur track of the New York, New Haven & Hartford railway, affording room for four railroad cars at a time.

John G. Lucas, Jr., is manager of the branch. Officers of the company include Alonzo F. Ruch, president; Michael J. O'Brien, vice president; Edmund I. Hodgkins, treasurer, and J. Leland Hodgkins, secretary.

RIDGE TOOL CO. COMPLETES ADDITION

The Ridge Tool Co., Elyria, Ohio, reports that the recent addition to its plant has been completed. This addition is the last of several that have been made since manufacturing started, and adds 100 per cent to the floor space. Most of the additional equipment has been installed in the addition. Installation is being rushed as the present plant is operating on a 24-hour schedule.

BUILDING NEW ADDITION TO PLANT

The Troop Water Heater Co., 2516-26 Jane street, Pittsburgh, is building an addition to its plant. The new building is expected to be ready for occupancy about January, when it will be put into use. The company also announced recently that William C. Roemhild will maintain headquarters in Dallas, Tex., after January 1, and will take care of the company's interests in the surrounding territory.

APPOINTS NEW REPRESENTATIVES

The Philip Haas Co., Dayton, Ohio, recently appointed two new representatives. W. B. Schuler, 360 North Michigan avenue, Chicago, has been appointed to represent the company in Wisconsin and Northern Illinois. J. R. Pulsifer, 15 Locust street, Rochester, N. Y., will sell the company's products in Pennsylvania, the District of Columbia, Maryland, and New York state, with the exception of New York City.

Washington, D. C., Trade Plans to Organize

THE three divisions of the plumbing and heating industries in Washington, D. C., have made a decision to attempt to improve conditions in those industries. This decision was made on Friday evening, December 14, at a meeting held in the Knights of Columbus Hall, 920 Tenth street, N. W., with representatives of manufacturers, wholesalers, master plumbers and heating contractors present, and with Claude W. Owen, of E. G. Schafer Co., Washington wholesaler, presiding.

The 175 present at the meeting decided to form a committee of 12 men, made up of 4 manufacturers, 4 wholesalers, 4 master plumbers and heating contractors, which will study the work accomplished by the Philadelphia Plumbing and Heating Development League in that city, and attempt to work out methods of adapting that plan to the District of Columbia. Various individuals in each division agreed to see that the men would serve, and plans will be made for a meeting of the 12 representatives in the early future.

The decision was made following two meetings, the first, in the afternoon, being for representatives of manufacturers and wholesale houses, and an evening session when all departments of the industries were invited. During the afternoon, more than 50 executives and salesmen of the selling organizations were present and were addressed by William G. Bergner, secretary of the Plumbing and Heating Industries Bureau, E. L. Flentje, who has been in charge of the Philadelphia campaign, and Mr. Owen. After Mr. Bergner, who was handicapped by a severe sore throat, had told the salesmen that the men in the industries do not keep themselves well enough informed about what other divisions are doing, and what is being done in other sections, he introduced Mr. Flentje.

Mr. Flentje opened by stating that the buying public is not conscious of the plumbing and heating industries, and that this should be remedied. After telling of the lack of cohesion between the various divisions of the trades, he said that the first question asked when the average person is approached about merchandising is, "Is there any market?" This can be answered in Washington by quoting figures showing that the total income of the inhabitants is $816,792,000, and that the effective income (the balance left after actual necessities are purchased) is approximately 61 millions. This means that every employed individual in Washington has about $904 to spend over and above necessities of life, a very high figure when compared to other cities.

The second question is, "How can we do it?" First of all, it is necessary to secure certain fundamental information, Mr. Flentje stated, with many analyses and the breaking down of data to see where the market lies. Without this information, no effort can be fully successful. Next it is necessary for those participating to adjust their internal difficulties. The four groups should meet as groups, appoint committees, then the committees can form into one harmonious whole. The best prospects for plumbing and heating goods, he has found, are those who earn $3,500 a year or more.

Mr. Bergner again took the floor to tell something of what the bureau is doing. He spoke of the lack of business training that many contractors have, and said that this business training has been overlooked because the master plumber and heating contractor was too busy with the details of his highly specialized business to devote the attention he should to merchandising, bookkeeping and the like. Surveys in Philadelphia, it was shown, proved that the average master doing remodeling work has almost no competition, although he thinks he has. Actual checks in many instances showed that the average number of bids asked for by home owners was only 1.1 per cent. In other words, in the greater number of cases the master had no competition, in some cases had one other bid against which to figure, and once in a great while there were three contractors involved. He believes that the movements now started all over the country will do a great deal to help the master plumber and heating contractor, and that they will show great progress during the next few years.

He asked that great prominence be given the new bureau slogan: "It Pays to Modernize Your Home," then touched on the Home Modernizing Bureau and its work, and told briefly what that bureau is, what it has accomplished, and what it hopes to do.

The first speaker at the evening meeting was Philip P. Gott, assistant manager of the Trade Associations' Department, United States Chamber of Commerce. Mr. Gott told the hearers that we are now in an era of trade association development, tracing the growth of the association idea from the old time guilds up to the present day body. He emphasized the fact that the day of the "good fellowship association," which met perhaps once a year and did nothing else, is passing, and that now the dominant association is the "every day" body, with an executive head, which is working every day for the good of its members. Progressive business men no longer "support" associations, he pointed out; they now "maintain" them, considering association dues and other expenses a very vital and necessary part of their expense of doing business.

There are several phases in the conduct of a well

organized association, Mr. Gott pointed out. The first is merchandising. It is no longer necessary to wait for demand, and plans can be made to get business despite unfavorable demand. Here Mr. Gott warned his hearers not to expect results too soon when putting on a merchandising drive, and told them to make plans carefully. The second is uniform cost accounting, with 120 associations in the country doing this, including the use of standard forms and the like. Third comes research, both technical and other types. Fourth, the development of better business through better trade relations, under the trade practice ideas of the Federal Trade Commission.

Then Mr. Flentje told in detail of what the Plumbing and Heating Development League has done in Philadelphia during the past eight months, the success that has come to all factors in the market in that city, a success so pronounced that it is planned to continue the work during 1929. Mr. Flentje, who is a member of the bureau staff, will leave Philadelphia on January 1, and another manager will succeed him. He illustrated his talk with charts showing accomplishments, and answered a great many questions about methods and ways of producing these accomplishments. Closing with a query about whether or not Washington wanted to try the same thing, he received a response that indicated enthusiasm, and plans for the committee were made at once.

Mr. Bergner told his enlarged audience many of the things that he had detailed to the crowd in the afternoon, and congratulated the attendants on the action they had taken. He passed out five suggestions for master plumbers which had been worked out. They are:

1—Look at your own business with the same critical eyes that you look at others.

2—A business without proper records is like a ship without a compass.

3—We must change the policy of "waiting for business" to one of "looking for and developing business."

4—Do one thing each day that will make your business stronger.

5—Identify yourself with your industry by using the slogan—"It Pays to Modernize Your Plumbing and Heating."

A. R. McGonagle, plumbing inspector of Washington, spoke briefly, also commending the action of the gathering. "Master plumbers must get on the progress band wagon, or their associations will be holding their meetings in a telephone booth," he asserted. He closed with the hope that the committee would get busy in the near future and secure some real results.

Suggestions for salesmen were also in order, being presented by the bureau representatives. They follow:

No. 1—Never leave a customer's place of business without leaving a constructive merchandising idea.

No. 2—Encourage your customers to put their place of business in presentable shape.

No. 3—A salesman is welcome by the retailer in the degree that he recognizes the dealer's problems and can offer concrete solutions to them.

No. 4—Inform your customers of the new slogan, "It Pays to Modernize Your Plumbing and Heating." Suggest to each of your customers to tell each of his customers, "It Pays to Modernize Your Plumbing and Heating."

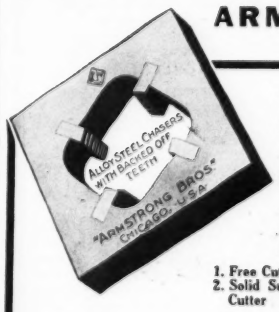
No. 5—Do not sell merchandise for stock unless you show the retailer how to dispose of it.

KEWANEE
STEEL Riveted
BOILERS
for Lower Heating Costs
KEWANEE BOILER CORPORATION
Kewanee, Illinois

WOLFF

Shower Heads
. . . . in "Duro" Plumbers Brass are ball jointed permitting free adjustment of the spray to any downward angle.
WOLFF CO.
"Superior Plumbing Fixtures"
CHICAGO
SUPERIOR PLUMBING FIXTURES

A SIGN OF THE TIMES
When you see the Ohio Brass trade mark you may know the product so marked is of the first quality.
Plumbing and Heating contractors are accepting O-B Valves as standard because they never fall down on the job.
Ask your Wholesalesman, He knows!
OHIO BRASS COMPANY
741V Mansfield, Ohio



ARMSTRONG BROS.
Vanadium Pipe Dies
These dies excel in easy cutting, long lasting qualities. They are of radically improved design and superior in workmanship and material. The Vanadium Tool Steel Chasers are cast-welded solidly into the body by our special process. Fit all standard stocks.
1. Free Cutting Rake
2. Solid Support Behind Cutter
3. Ample Chip Clearance
4. Relieved Cutters (Backed off)
Write for Catalog P-10
ARMSTRONG BROS. TOOL COMPANY
"The Tool Holder People"
323 N. Francisco Ave. Chicago, U. S. A.

CLIMAX SPECIALTIES

TEST PLUGS

Climax Test Plugs by making a sure test for you EVERY time, really insure your profit. No matter what the size or the pipe, we make or will make a proper plug to do the work.

Straight Double Plug

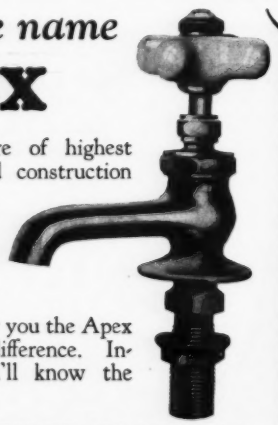
See your jobber.

THE C. M. KEMP MFG. CO.
MANUFACTURERS OF
PLUMBERS' SPECIALTIES
405-415 E. OLIVER ST.
BALTIMORE, MD., U.S.A.

Chicago, Ill.: OSCAR C. ANDERSEN, 627 Washington Blvd.
Southern Agents: J. M. BUTTS & CO., 733 Healy Bldg., Atlanta, Ga.
Pacific Coast Agents: WM. P. HORN CO., 58 Federal St., San Francisco, Cal. 509 Wilcox Bldg., Los Angeles, Calif.; L. C. Smith Bldg., Seattle, Wash.
Philadelphia, Pa.: DERBYSHIRE, MACK & MORGAN, Inc. Delaware Ave. and South St., Phila., Pa.
New England: ROBERT McKEOWN, JR., 46 Cornhill, Boston, Mass.
JOHN W. STILES & SON, 700 Prospect-Fourth Bldg., Cleveland, Ohio
W. F. HARPER, 3733 Lindell Blvd., St. Louis, Mo.

Look for the name

APEX



If you would be sure of highest quality, most approved construction and longest, trouble-free service in the brass goods you install, look for the name Apex on the brass goods you buy.

Ask your jobber to show you the Apex line. See it, see the difference. Install it and then you'll know the difference.

The STEBBINS-RICH BRASS MFG. CO.
Manufacturers of
Water Works—Apex Brass Goods
Simplex Copper Joint Coupling
6723 DENISON AVE. :: CLEVELAND, OHIO

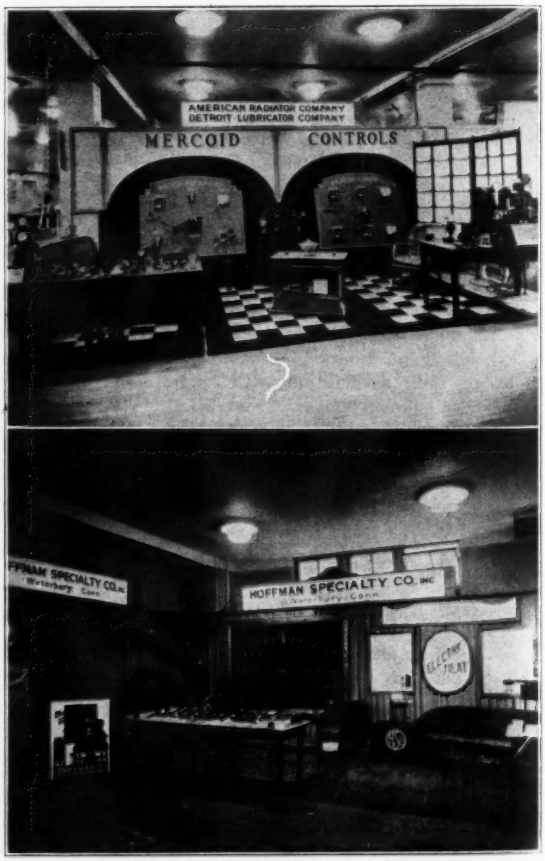
POWER SHOW HAS MANY EXHIBITORS

Heating and ventilating contractors, engineers and others interested in the most modern ways of warming and air conditioning, found much to attract their attention at the Seventh National Exposition of Power and Mechanical Engineering, held at the Grand Central Palace, New York City, December 3 to 8. Nearly 150 manufacturers of apparatus used by the heating and ventilating contractor, or of interest to him, were among the exhibitors at the show.

One of the outstanding features of the exhibit, from the standpoint of the visitor, was the great number of booths where a graphic display of the products advertised was made. In dozens of cases, the exhibitor had full-sized working models of his products. In others, smaller models had been designed which showed the way the full-sized equipment operated, and others had created charts and other methods of showing the operation of their product.

As is usual, the valve manufacturers took a prominent part in the show. Among those who displayed their wares were: The Dri-Steam Valve Sales Corp., New York City; William E. Williams, New York City; Hoffman Specialty Co., Waterbury, Conn.; H. Belfield Co., Philadelphia; Everlasting Valve Co., Jersey City, N. J.; Schade Valve Mfg. Co., Philadelphia, and the Michigan Valve & Foundry Co., Detroit. The Hoffman Specialty Co.'s booth was distinguished by a further showing of an electric heat process, and by the showing of two motion pictures, "Controlled Heat" and the "Heat Thief."

Associations in the field were prominent. The Heating



Top picture: Booth of American Radiator Co. and the Detroit Lubricator Co., at the New York Power Show. Bottom picture: Booth of the Hoffman Specialty Co., at the New York Power Show

and Piping Contractors National Association had taken two booths. In these, men prominent in the association were on hand to explain the body's certified heating program, to show the radiation charts, and to tell of boiler standards and other standardization projects. Those on hand at times during the week included Walter Klie of Cleveland, national president; Frank Howard of Boston, chairman of the board of directors; Henry B. Gombers, national secretary; Joseph C. Fitts, assistant secretary; William E. Taylor, manager of the New York City association; Edward G. Byrd, national field representative, and M. E. Durkee, manager of the Newark association. The American Society of Heating and Ventilating Engineers also had a booth, featuring the work of the society's research laboratory. A list of research investigations under way was given, nine in all. There were also pictures of some of the experiments under way, and charts showing part of the results. F. C. Houghten, director of the laboratory, and A. V. Hutchinson, secretary of the society, were in charge.

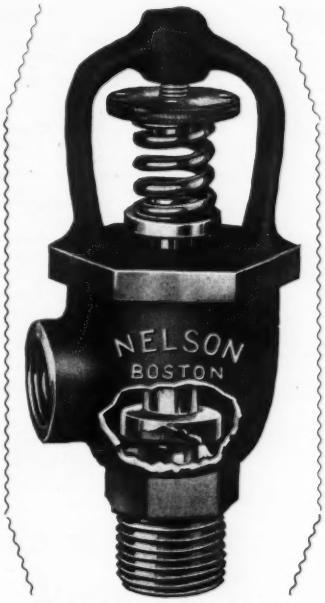
Several boiler manufacturers had booths. The Fitzgibbons Boiler Co., New York City, had three different sizes of steel boilers, and used as a background of its booth reproductions of many New York City buildings using this make of boiler. The Bryan Boiler Co., Greenwich, Conn., displayed oil and gas burning types, two of these being cut away to show interior construction. Thermal Service, Inc., New York City, had a reproduction of a cutaway boiler as one of the features of its booth. The gas-fired boiler made by the American Gas Products Association, and the combination furnace and air conditioner manufactured by the Carrier-Lyle Corp., were shown in a gas booth. The latter product was also displayed in a large corner booth, maintained by the Carrier-Lyle Corp., Newark, the Aerofin Corp. and the Carrier Engineering Corp. In the same booth were shown refrigerating compressors, types of fin radiation, a dryer, and unit air conditioner, among other products.

Steam specialties were shown in great profusion. Among the companies who manufacture this type of goods used by heating contractors showing were: Strong, Carlisle & Hammond Co., Cleveland, Ohio; Barnes & Jones, Boston, who showed vapor and vacuum steam heating specialties; Pitts & Kitts Mfg. & Supply Co., Philadelphia; Kieley & Mueller, Inc., New York City, who also displayed water and air specialties; Roberts Steam Specialty Co., Cleveland, who had a line of floats, water columns, gauges, gauge cocks and the like; Justus Steam Trap Co., Napanoch, N. Y.; H. O. Trerice Co., Detroit; Klingerit, Inc., New York City; Illinois Engineering Co., Chicago, with a line of steam traps as well as specialties, and Julian D'Este, Boston.

The S. T. Johnson Co., Oakland, Calif., displayed oil burner material, and nearby, the Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., had a showing of the types of heat regulators made by that firm. Various types of boiler compounds, for several different purposes, were on exhibition. John J. Furrer & Co., Inc., Long Island City, N. Y., had a boiler compound, as did the Vinco Co., New York City, which had a working model showing the action of its cleanser. X Laboratories, New York City, used a vessel in which some of its compound was "cooking" as part of its exhibit.

Several types of anchors and similar equipment were shown. The Kempton Mfg. Corp., New York City, showed bolt anchors; the Rawlplug Co., New York City, had plugs holding up 900 pounds of lead; the Star Expansion Bolt Co., New York City, had a line of its products, as did the Diamond Expansion Bolt Co., Garwood, N. J. There were also a great many companies making packing who had booths. These included La Favorite Rubber Mfg. Co.,

A REAL RELIEF VALVE



The external phosphor bronze spring on the Nelson Relief Valve assures positive, perfect functioning. Adjustable from 1# to 175#. When the maximum pressure adjustment is reached, you will hear a *click*.

"Built with a click"

THE STACK HEATER CO., 250 Stuart St., Boston, Mass.

Pipe Fitting with the Oxyacetylene Torch and AIRCO 99.5% PURE OXYGEN

Many contractors have found Oxyacetylene cutting and welding to be the most desirable and economical method of installing much of their pipe work. This is especially true if they use Airco Oxygen—every cylinder is guaranteed and stamped 99.5% Pure.

We Manufacture

Airco Oxygen Airco Acetylene
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AIR REDUCTION SALES COMPANY

Manufacturers and distributors of Airco Oxygen, Airco Acetylene, Airco-National Carbide
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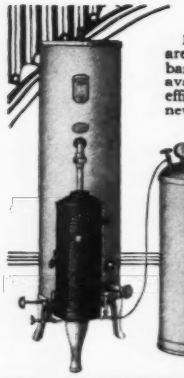
Baltimore, Bettendorf, Iowa, Birmingham, Boston, Buffalo, Charlotte, N. C., Chicago, Cleveland, Dayton, Detroit, Emeryville, Calif., Jersey City, Los Angeles, Milwaukee, Minneapolis, Oklahoma City, Philadelphia, Pittsburgh, Richmond, Seattle, St. Louis, Wheeling

Home Office: 342 Madison Ave., New York City, N. Y.
66 Plants 22 District Offices



Hotstream Gas-Pressure Heaters are ideal for use in country and suburban homes where city gas is not available. They are rapid and efficient, and offer the Plumber a vast new field for profitable business.

Hotstream Double Copper Coil Heaters are used, with the Coleman Patented Gasoline Burner.

Write for complete information.

THE HOTSTREAM HEATER CO.
"Makers of Heaters that Heat"
Cleveland, Ohio

HOTSTREAM GAS PRESSURE HEATERS

IT PAYS TO BUY GOOD TOOLS

For Lower Threading Costs

Buy the New No. 11-A 1 to 2 in. Ratchet Beaver. The biggest improvement in die stocks in 20 years. All leading jobbers carry it in stock.

THE BORDEN COMPANY
510 Dana Ave., Warren, Ohio

BEAVER
TIME and LABOR SAVING TOOLS

PERFECTION
FLOOR & CEILING PLATES

Perfection Floor and Ceiling Plates only take a second to adjust and they greatly add to the appearance of the job.

From Your Jobber

The BEATON & CADWELL MFG. CO.
Established 1894
NEW BRITAIN, CONN.

PHOENIX BRASS FITTINGS

Every Fitting Air Tested Under Water

PHOENIX BRASS FOUNDRY
IRVINGTON, NEW JERSEY

Booth of Sarco Co., Inc., of New York City, at the New York Power Show

Paterson, N. J.; Austin Mason Co., New York City; L. E. Strong Packing Co., Inc., New York City; The Allpax Co., Mamaroneck, N. Y.; Universal Packing Corp., Pittsburgh, Pa.; Crane Packing Co., Chicago, and Garlock Packing Co., Palmyra, N. Y.

Unit heaters attracted a great deal of attention, this rapidly growing method of heating being represented by several manufacturers. Among the exhibitors of heaters, or apparatus used by them, was the Rome Brass Radiator Co., New York City, which also showed bathroom units in copper radiation, enclosed units, including one built-in under a model window and photographs of rooms in which copper radiation had been installed. Other exhibitors were: Erie Heating Systems, Inc., Erie, Pa., this company showing a unit hooked up to a boiler; Modine Mfg. Co., Racine, Wis., this manufacturer also having a complete display of copper radiation installed in walls, in cabinets, etc., and a unit heater working; the Grinnell Co., Providence, R. I., this booth including pipe specialties, valves, sprinklers, a pipe bending exhibit, fabricated piping, fittings and humidity controls; Thermal Units Co., Chicago; the Trane Co., La Crosse, Wis., where a working model was shown, and in addition a concealed heat cabinet and a concealed heater; and the McQuary McQuay Radiator Corp., Chicago, also displaying cabinets and concealed radiators.

Pump manufacturers were also present in full force. Various types of pumps were shown by the National Co., Malden, Mass.; Ames Pump Co., Inc., New York City; the LaBour Co., Chicago Heights, Ill.; the Westco-Chippewa Pump Co., Davenport, Iowa; M. T. Davidson Co., New York City; Pennsylvania Pump & Compressor Co., Easton, Pa.; Beach-Russ Co., New York City, and Nash Engineering Co., South Norwalk, Conn. Several of these firms also exhibited other products. For instance, the large Nash exhibit included compressors and ejectors. In addition, the Nash Engineering Co. distributed copies of the directory of the show.

A. W. Dovel Co., Inc., Brooklyn, N. Y., made a feature of a fuel oil system in its booth. William E. Williams, New York City, showed a line of products which he handles, including meters, pump governors and safety cocks. Water softeners were shown by the Neckar Water Softener Corp., New York City; Automatic Water Softener Co., Pittsburgh, and the Permutit Co., New York City. Alexander Millburn Co., Baltimore, Md., displayed welding and cutting apparatus and oil burners, as well as sprays. Welding and cutting apparatus was also featured by Quasi Arc,

Inc., New York City; Linde Air Products Corp., New York City, and the Torchweld Equipment Co., Chicago.

Several concerns featured pipe threading and cutting machines, most of them having power machines working. Some of those exhibiting were the Toledo Pipe Threading Machine Co., Toledo, Ohio; Williams Tool Corp., Erie, Pa.; the Borden Co., Warren, Ohio, and the Peerless Machine Co., Racine, Wis. Air filters were also popular, the manufacturers showing them including the Staynew Filter Corp., Rochester, N. Y. Electric drills and other tools of this type were shown by many concerns, two of them being the National Electric Products Co., New York City, and Black & Decker Mfg. Co., Towson, Md.

The American Radiator Co., New York City, and its subsidiary, the Detroit Lubricator Co., shared a double booth. The former showed controls of various types, while the latter company stressed its oil burner accessories, including fuel pumps, valves and the like. The A. M. Byers Co., Pittsburgh, made a ball of wrought iron, 2,290 pounds in weight, puddled by its new mechanical process, the center of its exhibit. In addition, the company showed sections of pipe, coils, welded joints and the like. Edward Story, metallurgist, and Frank Taylor, chief inspector, assisted by members of the sales force, were on hand to describe the process.

Stockham Pipe & Fittings Co., Birmingham, Ala., had an interesting exhibit made up of a large variety of fittings, some of them in sectional form to show construction. Conduits, variously insulated, were the feature of the booth of the Ric-Wil Co., Cleveland, Ohio. The Farnsworth Co., Conshohocken, Pa., head reclamation engineers, were also exhibitors. Sweet & Doyle Foundry & Machine Co., Troy, N. Y., showed examples of its method of equipping ordinary boilers so they can burn gas.

Various types of automatic temperature and humidity controls and similar products were shown by several manufacturers. Among these were the Johnson Service Co., Milwaukee, Wis.; National Regulator Co., Chicago, and Mercoid Corp., Chicago. Pressure and other regulators were also popular, manufacturers exhibiting including the Leslie Co., Lyndhurst, N. J.; Mason Regulator Co., Boston, Mass.; Powers Regulator Co., Chicago; Watts Regulator Co., Lawrence, Mass., the latter company having an electric flash to light those on exhibit; Arca Regulators, Inc., New York City, and the Engineer Co., New York City, this concern also exhibiting burners. Water heaters were shown by E. B. Badger & Sons Co. of Boston, which also had expansion joints and other products on display, and by the Rathgeb Grate Co., Inc., New York City.

DeBothezat Impeller Co., Inc., New York City, showed disc pressure fans, and Benjamin F. Shaw Co., Wilmington, Del., pushed power plant and industrial piping. The same profession was stressed by R. H. Baker Co., Inc., Cam-

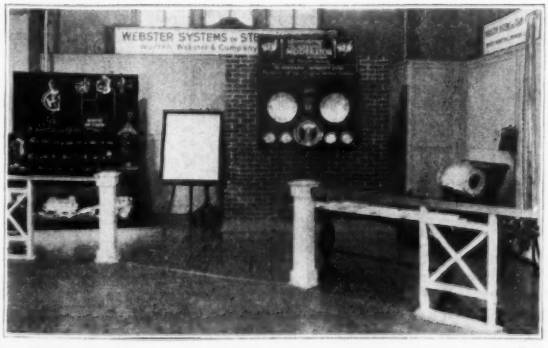
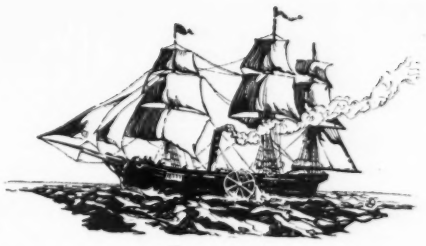


Exhibit of Warren Webster & Co. at the New York Power Show



5 times as fast!

The "Savannah," the first sea-going ship to use auxiliary steam, left Savannah on May 26, 1819, and arrived in Liverpool June 20, twenty-five days later. Today liners cross the ocean in five days—five times as fast.

5 to 1 is a ratio which a plumbing and heating contractor should keep in mind in quite another connection. For this is the rate of pressure increase over temperature increase in closed systems.

Figures that point out a real need

Standard range boilers are guaranteed to be tight up to 85 lbs. pressure, extra heavy range boilers to 150 lbs. When you consider that it only takes a temperature rise of 72 degrees to 110 degrees to effect a pressure rise of 60 lbs. to 265 lbs., the need for relief valves is shown to be a very real one.

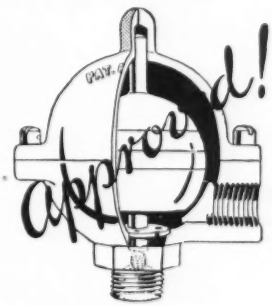
A Red Top Relief Valve provides an outlet which automatically relieves before pressures reach the danger point. It works on the gravity principle pressure in the system forcing a nickel weighted piston from the seat. Model No. 1 can be set to relieve at 50, 75, 100 and 130 lbs.

Model No. 2 has the lead ball cast in one section and relieves automatically at 30 lbs. This is used as the basis of an efficient and economical system of hot water heating.

Red Tops bear official approval

Both valves by their positive operation have earned the official approval of the Underwriters' Laboratories, Inc., America's foremost testing organization.

Make use of the coupon. Red Top folders give further information.



Sectional View, Model No. 1 for domestic hot water supply systems

Neptune Meter Co.
50 E. 42nd St. New York City, N. Y
Branch Offices in Principal Cities

Red Top Relief Valve

NEPTUNE METER CO.
50 East 42nd Street, New York, N. Y.
Please send me a copy of the new edition of your folder, "Protection," which describes Red Top Relief Valves and their operation.
Name.....
Street.....
City.....
State.....

PENBERTHY PRODUCTS
THE FEATURES THAT SELL THE PENBERTHY AUTOMATIC CELLAR DRAINER
Completely automatic . . . needs no priming. No waste of pressure water . . . no overflow or leakage. Compact . . . possible to use a smaller sump than with any other equipment of like capacity. No corrosion . . . brass, bronze and copper throughout. No interference from slime or floating material . . . all working parts above water level.

Established 1886

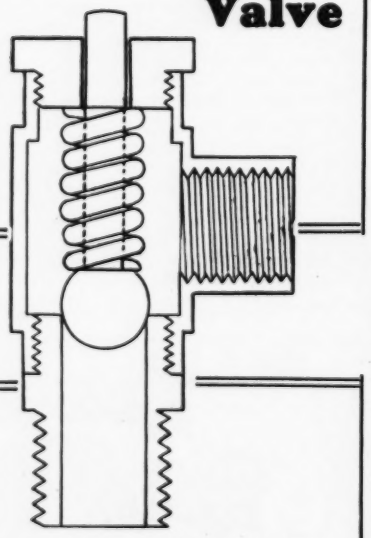
PENBERTHY INJECTOR COMPANY

New York Office 71 Beekman St

DETROIT

Canadian Plant Windsor, Ontario

The Eddy Pressure Relief Valve



The Eddy Valve is designed especially for hot water boilers, pressure, storage and closed plumbing systems.

It is made of virgin metal and has no external or internal weights. The spring is not in water and, therefore, cannot rust or corrode. This assures perfect functioning as the spring does not lose its tension or adjustment.

Every valve is fully tested before leaving our factory.
Write for full information.
Catalog will be sent on request.

DONNELLY MFG. COMPANY, Inc.

29 Mills St. : : Malden, Mass.

New York Representative: Henry Stein, 50 Cliff St., New York City
Philadelphia and Southern Territory Represented by Derbyshire, Mack & Morgan, Inc., 923-5 Real Estate Bldg., Philadelphia, Pa.

bridge, Mass. Gauges of many kinds were featured in a number of the booths. These included the exhibits of King-Seeley Corp., Ann Arbor, Mich.; Taylor Instrument Companies, Rochester, N. Y.; Brown Instrument Co., Philadelphia; C. J. Tagliabue Mfg. Co., Brooklyn, N. Y.; the Bristol Co., Waterbury, Conn., and Liquidometer Co., Inc., Long Island City, N. Y.

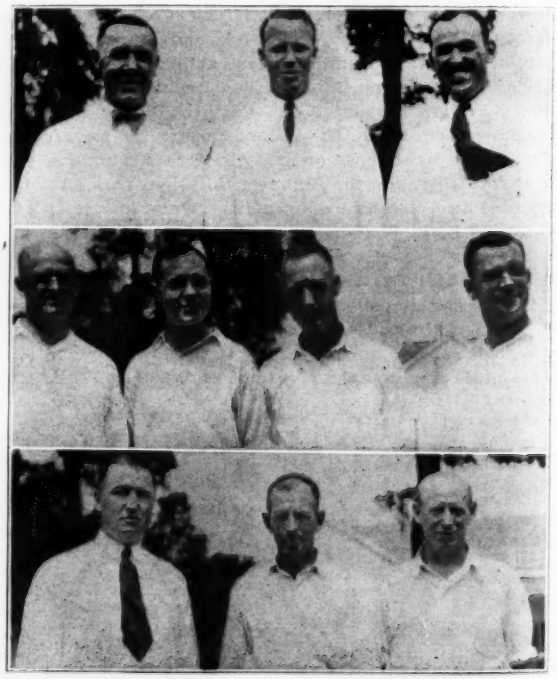
Personal Mention

Walter J. Kohler, president of Kohler Co., Kohler, Wis., attended the gridiron dinner of the National Press Club, held Saturday, December 8, at Washington, D. C.

Warren D. Blatz, sales manager of the Bead Chain Manufacturing Co., Bridgeport, Conn., has been elected vice president of that concern, it is announced. Mr. Blatz will continue to have charge of the company's sales. He is now on a brief vacation, taking a duck hunting trip in Virginia.

D. H. Bowlzer has been appointed sales manager of Grabler-Republic, Inc., of Cleveland, succeeding **J. D. Rosenbaum.** Mr. Bowlzer has spent practically his whole life in the plumbing field. He was for several years sales manager of the Glauber Brass Co., Cleveland. Later he was for several years sales manager of the Central Brass Co. of Cleveland. Mr. Bowlzer then went to the Pacific Coast, where he was for a time manager of the Los Angeles branch of M. Stulsaft Co., and later was at the head of the Crescent Specialty Co., of Los Angeles. J. D. Rosenbaum is now identified with other interests of **E. H. Blywise,** president of Grabler Republic, Inc.

William R. Plum, manufacturers' representative, 360 North Michigan avenue, Chicago, is now representing the Stack Heater Co., Boston, Mass., in the Chicago territory.



Top row: William Thumm of Chicago, E. H. Christiansen, Pacific Boiler Corp., Chicago; E. M. Tennant, C. A. Dunham Co., Chicago. Middle row: R. K. Millward, H. A. Swartz, both of U. S. Radiator Corp.; J. H. O'Brien, American Blower Co.; Frank P. Murphy. Bottom row: R. E. Moore, Bell & Gossett Co., Chicago; E. L. Kline of Detroit, J. H. Renz of Detroit

Convention Dates

January 10 and 11, 1929.—SOUTH DAKOTA—The ninth annual convention of the South Dakota State Association of Master Plumbers, to be held in Huron.

January 14, 15 and 16, 1929.—PRESIDENTS AND SECRETARIES—The seventh annual Presidents' and Secretaries' Conference of the Plumbing and Heating Industries Bureau, to be held in the Florentine Room of the Congress Hotel, Chicago.

January 22, 23 and 24, 1929.—ILLINOIS—The thirty-seventh annual convention of the Illinois Master Plumbers Association, to be held at Peoria, with headquarters at the Pere Marquette Hotel.

January 28, 29, 30 and 31, 1929.—A. S. H. V. E.—The annual meeting of the American Society of Heating and Ventilating Engineers, at Chicago, Ill.

January 29 and 30, 1929.—C. S. A.—A special meeting of the Central Supply Association, to be held at the LaSalle Hotel, Chicago.

January 29, 30 and 31, 1929.—WISCONSIN—The thirty-fifth annual convention of the Wisconsin Master Plumbers' Association, to be held in Milwaukee, with headquarters at the Hotel Pfister.

February 5, 6 and 7, 1929.—OHIO—The thirty-eighth annual convention of the Ohio State Association of Master Plumbers, to be held in Mansfield, with headquarters at the Mansfield-Leland Hotel.

February 12-16, 1929.—POWER SHOW—The fourth annual Midwest Power Engineering Conference and Exposition, to be held at the Coliseum, Chicago.

February 13 and 14, 1929.—E. S. A.—The Winter meeting of the Eastern Supply Association, to be held at the Hotel Astor, New York City.

March 11, 12 and 13, 1929.—INDIANA—The thirty-third annual convention of the Indiana Society of Sanitary Engineers, to be held at South Bend.

March 11, 12 and 13, 1929.—VIRGINIA—The sixth annual convention and a two-day institute of the Virginia Associated Plumbing and Heating Contractors, to be held at Charlottesville.

March 25 and 26, 1929.—MISSOURI—The forty-fifth annual convention of the Missouri State Association of Master Plumbers, to be held in Springfield.

April 2, 3 and 4, 1929.—A. O. B. A.—The annual convention of the American Oil Burner Association, to be held at New York City.

April 9, 10 and 11, 1929.—MICHIGAN—The thirty-seventh annual convention of the Michigan State Association of Plumbing and Heating Dealers, to be held in Detroit, with headquarters at the Fort Wayne Hotel.

April 16 and 17, 1929.—NEW YORK—The forty-first annual convention of the New York State Association of Master Plumbers, to be held at Schenectady.

April 25 and 26, 1929.—LA.-MISS.—The eighth annual convention of the Louisiana-Mississippi Association of Plumbing and Heating Dealers to be held at Gulfport, Miss., with headquarters at the Markham Hotel.

May 6 and 7, 1929.—FLORIDA—The seventh annual convention of the Florida State Association of Master Plumbers and Heating Dealers, Inc., to be held at Daytona Beach.

May 13, 14 and 15, 1929.—N. P. S. A.—The twentieth annual convention of the National Pipe and Supplies Association, to be held at Pittsburgh, Pa., with headquarters at the William Penn Hotel.

May 23, 24 and 25, 1929.—N. A. P. H. S.—The fourth annual convention of the National Association of Plumbing and Heating Salesmen, to be held at Philadelphia.

June 25, 26 and 27, 1929.—N. A. M. P.—The forty-seventh annual convention of the National Association of Master Plumbers, to be held at Buffalo, N. Y., with headquarters at the Hotel Statler.

COMING TRADE EVENTS

December 27, 1928.—A Christmas party for the children to be given by the members of the Women's Auxiliary of the Master Plumbers' Association of Detroit, Mich., followed by a dinner for members and their families.

January 7, 1929.—The annual installation of officers of the Association of Master Plumbers of St. Louis, Mo., to be held at the American Annex Hotel.

January 10, 1929.—An open meeting for both divisions of

Watrous

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A LINE representing the most advanced ideas in sanitation. Economy of operation and ease of installation. Duojet Closets—Flush Valves—Self-Closing Basin Cocks—Combination Lavatory Fixtures—Pop-Up Wastes—Liquid Soap Fixtures, etc.

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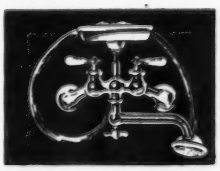

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the Manhattan branch, Association of Master Plumbers of the City of New York, to be held at the Building Trades Employers Club, 2 Park avenue.

January 12, 1929.—The annual banquet and installation of officers of the North Hudson Master Plumbers' Association, to be held at the Elks Club, Union City, N. J.

January 28, 1929.—The annual ladies night and ball of the Master Plumbers Association of Philadelphia, to be held at McCallister's Restaurant, 1811 Spring Garden street.

January 28, 29 and 30, 1929.—The second annual three-day institute to be held at New York University, New York City, under the auspices of the New York State Association of Master Plumbers.

January 30, 1929.—The annual banquet of the Master Plumbers Association of Baltimore City, Inc., to be held at the Community Hall in that city.

February 2, 1929.—The annual ball of the North and Northwest Master Plumbers' Club of Chicago, to be held at the Germania Club, Clark street and Germania place in that city.

Ellis Jungman, master plumber, who has been located at 133 Lenox avenue, New York City, planned to open a new shop at 81 East 110th street in that city about December 15. The new place of business will feature a modern showroom.

THIS WAS NEWS 1908 20 YEARS AGO

December 19, 1908

The North and Northwest Side Master Plumbers' Pleasure Club of Chicago gave its fifth annual reception and ball at the Northwest Hall on West North avenue, on Wednesday evening, December 16. Though the weather was not favorable, a large number of master plumbers and members of their families were in attendance. Dancing was enjoyed until a late hour, and refreshments were served.

—1908—

Captain A. B. Reck of Hellerup, Denmark, member of A. S. H. V. E., has received patent on a cast iron boiler.

—1908—

The annual entertainment and ball of the Manhattan branch of the New York City Association of Master Plumbers was held on Wednesday evening, December 9, at the Lexington Opera House on Fifty-eighth street. The opera house was elaborately decorated with gorgeous white and gold streamers suspended from the center of the ceiling and the boxes, and garlands of ferns and roses everywhere. The chairmen of the various committees were congratulated by the guests because of the great success of the arrangements.

—1908—

W. H. Halsey, president of the National Association of Master Plumbers, has been awarded the plumbing contract on the $500,000 hospital now being erected in Milwaukee, Wis.

—1908—

The Albert Brunk Plumbing Co., of Racine, Wis., has been incorporated by Albert Brunk, Katherine Brunk and Martin J. Gillen.

—1908—

While digging up the steam main at Fredonia, Pa., several days ago, a half-inch lead pipe was unearthed. The old inhabitants claim that this is a remnant of the first gas main ever laid in the United States.

THE TRADE

NEWS FOR PLUMBING AND HEATING CONTRACTORS

HEATING AND PIPING DIRECTORS HEAR REPORTS

The board of directors of the Heating and Piping Contractors National Association met recently at national headquarters, 50 Union Square East, New York City, holding a two-day session. A large part of the time was occupied in receiving reports from various committees, and from Edward G. Byrd, field representative of the association.

The final report of the sub-committee on depreciation, drawn up by Chairman W. W. Hubbard, was approved, and the standards adopted. Reports were also received from the membership committee, headed by E. W. Verity; the standardization committee, headed by R. S. Franklin; the certified heating committee, which has A. R. Thompson as chairman, and the sub-committee on welding, headed by John H. Zink.

It was decided to send Mr. Byrd on a trip to the West Coast in the interest of the association. While in that territory, it is planned to have the field representative call a conference of secretaries of local associations along the Pacific slope.

A. S. H. V. E. COUNCIL RECEIVES BOILER RATING REPORT

The council of the American Society of Heating and Ventilating Engineers held one of its best attended meetings on Thursday, December 6, at the society's headquarters, 29 West Thirty-ninth street, New York City. One of the more important committee reports received was that of the boiler rating code committee, consisting of Alfred Kellogg, F. C. Houghten and L. E. Seeley. This body submitted a report outlining methods of rating boilers, which was received without action by the council.

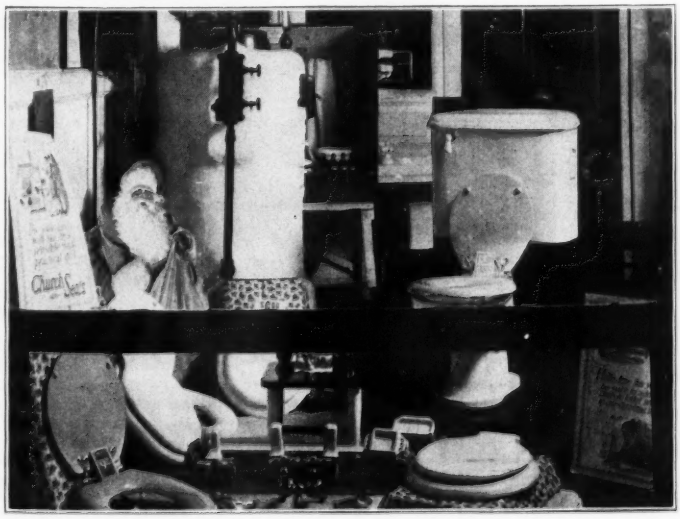
Some time was spent in discussion of where the summer meetings in 1929 and 1930 are to be held, and it was decided to hold next year's mid-season convention under the auspices of the Toronto Chapter. The council also approved amendments to the by-laws relating to grades of membership in the society.

Those present included President A. C. Willard, F. Paul Anderson, H. H. Angus, W. H. Carrier, Roswell Farnham, L. A. Harding, C. V. Haynes, W. T. Jones, E. B. Langenberg, Thornton Lewis, J. F. McIntire and H. Lee Moore.

N. A. M. P. CONVENTION AND EXPOSITION COMMITTEE MEETS IN BUFFALO

The convention and exposition committee of the National Association of Master Plumbers held a meeting at the Hotel Statler, Buffalo, N. Y., to plan for the forty-seventh annual convention of the association, which is to be held in Buffalo on June 25, 26 and 27, 1929. The following members of the committee were in attendance: Jere Sheehan, Jr., of St. Louis, Mo., president of the national association; Ed. L. Penfrase of St. Louis, national secretary; George H. Drake of Buffalo, chairman of the committee; James J. Bresnahan and George W. Frank, both of Buffalo; W. K. Glen, advertising manager of Crane Co., Chicago; William J. Lang of Chicago; Frank B. Lasette of New York City; Committee Secretary R. H. Mattison and Henry J. Ritter, both of Buffalo; John J. Vogelpohl of Cincinnati, Ohio; C. W. Wanger, president of the Woodward-Wanger Co., Philadelphia. A. M. Mad-

Jersey City, N. J., Master's Attractive Window



UTILIZING a small window space for a maximum of attractiveness, the show window of James T. Brennan of Jersey City, N. J., attracts the eye, and is not so crowded with small display pieces as to seem heterogeneous. As seen in the photograph at the left, the window brings out the boiler and water closet, and at the same time shows seats, faucets and bathroom jewelry. It is a good example of dressing a small window in an attractive manner.

dock, president of Thomas Maddock's Sons Co., Trenton, N. J., was represented at the meeting by Harold Maddock.

The committee complimented Secretary Penfrase on the booklet he is preparing for use in conjunction with the publicity on the national convention. It is to be a 48-page booklet on the history of sanitation, and will be circularized among members of the association and exhibitors at the convention. The plan is that 15,000 are to be printed originally, and others run off to order for distribution by individual members.

The committee was advised that the convention program will provide for a single daily session running continuously from 10:00 a. m. to 2:30 p. m. daily, leaving the afternoons free for the delegates to attend the exposition. Plans for the floor diagram at the exposition hall, the booth design and the decorative scheme were discussed, and definite information is expected to be ready shortly after the first of the year.

The committee voted to have the prize essay contest by the Buffalo school children in connection with the convention have as its subject, "The Use of Water for the Benefit of Mankind." It will be conducted along lines similar to those followed at Memphis this year, where the essay contest with "Sanitation and Health" as the subject was so successful. The winners will be announced, the prizes awarded and the essay read by the winner at the exposition auditorium probably on the opening day of the convention.

The committee was informed by the Kohler Co., Kohler, Wis., that the Kohler adult and juvenile bands will be in attendance at the Buffalo convention, the party consisting of about 125 musicians and attendants. The outline of the plan to be followed by the special educational committee of the convention and exposition, of which C. W. Wanger is chairman, was laid before the committee, and is expected to prove one of the outstanding features of the gathering.

Plans are being made for a big "Sanitation Week" in Buffalo during the convention, with a proclamation from Mayor Frank X. Schwab, and daily bulletins from Health Officer Francis E. Fronczak.

WESTERN NEW YORK CHAPTER HOLDS DECEMBER MEETING

The December meeting of the Western New York Chapter of the American Society of Heating and Ventilating Engineers was held Monday, December 17, at the Hotel Buffalo, Buffalo, N. Y. O. K. Dyer of the Buffalo Forge Co. was one of the speakers for the occasion, and his subject was, "Unusual Installations in Connection with Fan Systems."

C. W. Farrar, president of the Excelso Products Corp., also spoke, taking as his subject, "Indirect Hot Water Supply Heating."

REPORT ON ATTENDANCE AT CHICAGO GOLF MEETS

John S. MacKenzie, chairman of the golf committee of the Plumbing Contractors' Association of Chicago, recently sent out a financial statement to members, showing the attendance at the various meets, and the cost of holding them. The largest meet of the year was held July 7 at Tam O'Shanter Golf Club, when 91 members and guests were present. The attendance at other meets was as follows: Big Oaks, 77; Evergreen, 64; Oak Hills, 46; Nordic, 62; Cog Hill, 55.

The report showed the golf committee of the association to be in good fiancial condition for the start of next season.

EXECUTIVE COMMITTEE OF BUREAU MEETS

The executive committee of the Plumbing and Heating Industries Bureau met at bureau headquarters in Chicago on December 7 and decided upon recommendations which will be submitted for the approval of the board of directors on January 17. A budget of $425,000 for 1929 was approved by the executive committee, and will be one of its major considerations. Of this amount, more than $250,000 will be invested in national advertising, publicity and sales promotion efforts and approximately $90,000 will be spent on field service work.

The executive committee will recommend to the board of directors a gradual increase in the field service as rapidly as funds will permit. This expansion will be in accordance with the present policy of having men permanently located in certain natural centers.

The executive committee voted to continue the offices on the West Coast, to establish an office in New York when funds permit, and to maintain a man in Philadelphia for the year 1929 who will assist in the campaign of the Philadelphia Plumbing and Heating Development League, which was begun last April with bureau support, and which proved the success of bureau methods, and will now be continued by the trade in the Philadelphia territory.

Time payment selling was discussed by the executive committee. It was the unanimous opinion that it was one of the measures needed in modern merchandising, particularly because it fractionalized the unit cost of our products and services. The bureau during 1929 will make a thorough study of time payment selling in order to promote its use and proper understanding.

Another indication of the stress which the bureau will place on sales promotion in 1929 was the action of the executive committee in authorizing a new division in the bureau to be known as the commercial research and promotion division of the bureau. It will be the duty of this division to carry the methods of the Philadelphia campaign to all cities in the 100,000 group.

The bureau was also authorized to continue the work of

Top picture: Nicholas Cody, George Perry, Fred Hummel. Bottom picture: Officers of the Plainfield Master Plumbers' Association. In the back row are E. J. Hannon, vice president; Russell F. Elsener, financial secretary; C. E. Krausse, secretary; D. J. Galbraith, trustee. In the front row are William Hayes, recording secretary; C. W. Krausse, trustee; Elmer Terry, president; Harry Roskie, sergeant-at-arms. George McVoy, trustee of the state association, is seated in front

collecting information regarding local, state, and national codes, and ordinances on plumbing installation. The executive committee decided in favor of abolishing the home study course in plumbing and steamfitting and will make this recommendation to the board of directors.

Authority was granted to the bureau to employ a specialist in heating who will co-operate with the Heating and Piping Contractors National Association and carry the bureau services in a more intensive way to heating contractors.

Present at the meeting were Walter J. Kohler, chairman; H. W. Seymour, vice chairman; Walter Klie, Jere Sheehan, Jr., W. K. Glen, V. L. Sheldon, William Scudder, A. M. Maddock, B. O. Tilden, E. D. Hornbrook, H. M. Reed, R. E. Sargent, and O. A. Kroos.

ST. LOUIS MASTER PLUMBERS ELECT OFFICERS

The Association of Master Plumbers of St. Louis, Mo., held its annual meeting on Monday evening, December 10, and elected the following officers for the ensuing year:

President, Patrick Finn; first vice president, Edward Monteath; second vice president, F. J. Timmermann; treasurer, Bernard Braun; recording secretary, P. W. Waters; financial secretary, Henry Bartosch; sergeant-at-arms, Frank R. Nagel; board of trustees, Arthur Stein, Sam Burman and James J. Noble; auditing committee, Matth. Sadorf, D. H. Reynolds and Ed. J. Stumpf.

The installation of these officers will take place at the association's annual stag dinner which will be held at the American Annex Hotel on Monday evening, January 7, 1929.

SOUTHEAST TEXAS ZONE PASSES RESOLUTION OF SYMPATHY

The Southeast Texas Zone of the Associated Master Plumbers of Texas recently met at the Brazos Hotel, Houston. As part of the meeting, the zone passed a resolution of sympathy and condolence to the survivors of James F. Madden, well known master plumber of Sherman, Tex., who died recently in that city.

PLUMBERS OF VANCOUVER ATTEND FREE WELDING CLASSES

A welding school for members of the local plumbers and steamfitters' union has been opened in the plant of Leek and Co., Ltd., heating engineers, of Vancouver, B. C., Can. More than forty members are taking the course in classes of six. The classes are held each Saturday afternoon.

BALTIMORE CITY ASSOCIATION HEARS INSTRUCTIVE TALKS

The monthly smoker and luncheon of the Master Plumbers Association of Baltimore City, Inc., was held on Thursday, December 6, at the association club rooms in the Brith Sholom Hall. The meeting was well attended and many guests were present. Max Kloze, ex-chairman of the executive committee, presided, and opened the evening with an address on what the association had done since the last meeting, outlining some of the prospective measures of the future. He dwelt upon the coming advertising campaign of the plumbing industry in Baltimore, and stated that only by the whole-hearted co-operation of each individual member could success be hoped for. Plans should now be laid by every member, stated Mr. Kloze, as to how he intends to tie into the campaign, and by what methods. He offered numerous suggestions, and assured everyone that any help needed would be extended by the association or its advisers. Mr. Kloze remarked that it will be the purpose of each succeeding smoker to bring

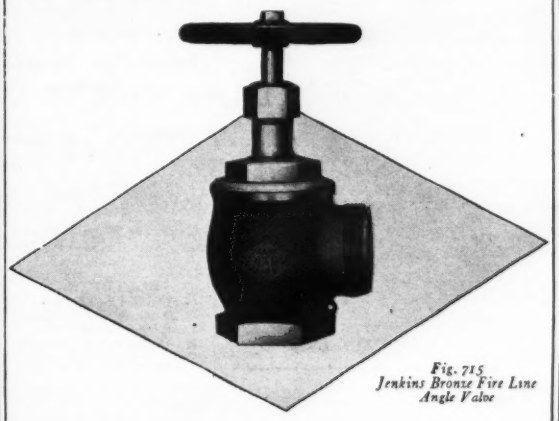


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Fig. 707
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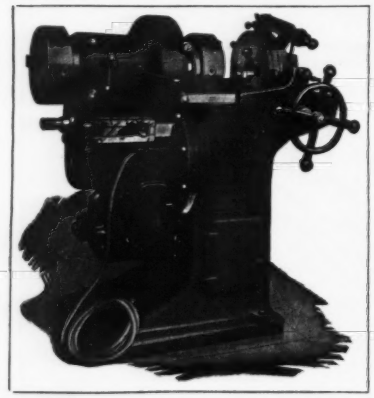

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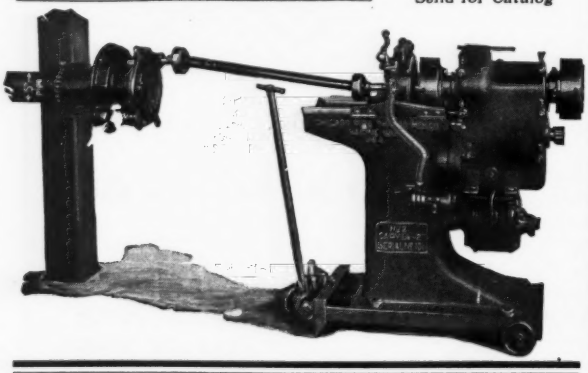

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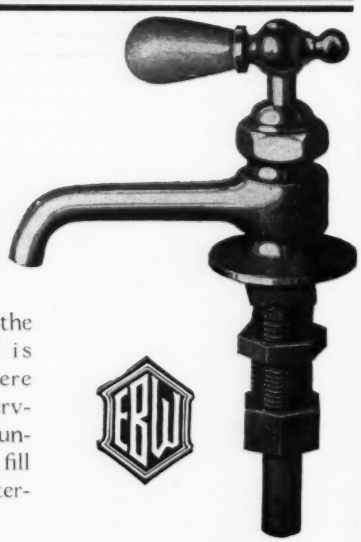

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before the members a speaker connected with the industry or one of its allied branches.

The next speaker introduced was George J. Fitch, chief inspector of the plumbing division of the Baltimore City Health Department, who spoke on the present plumbing code of Baltimore, comparing it with the new one which will soon become effective. Mr. Fitch said that he believes Baltimore's new code will compare very favorably with the best of the country. He cited some particular sections, and showed their superiority over similar phases of plumbing in the codes of other large cities. Mr. Fitch stressed the importance of obtaining permits for every job, and the necessity of knowing what to do on every contemplated job; or getting the information before starting from the plumbing division, whose officials are always ready to render all possible aid. Such a precaution, he said, would save a great deal of time and money.

Carroll J. Reynolds, assistant chief inspector, made a few brief remarks on the care necessary to execute the small jobs in as good a manner as the larger ones, stating that the plumbing inspectors were noting a laxity on the part of the plumber in this type of work. Mr. Kloze, in introducing Joseph Spector, attorney, stated that the association would at each meeting attempt to have a lawyer speak on some legal topic of interest and something that would also be educational.

Mr. Spector took for his subject, "Contracts." He outlined the various fundamentals with which a layman, and especially a business man, should be thoroughly acquainted. He stated that he believed that there should be a clause in every contract which would reserve to the mechanic the title to all materials until they are paid for, and stated that this is entirely legal and enforceable. Mr. Spector will address the association again in the near future.

A. T. Fleishman, of the Baltimore Coal Exchange, spoke on "Forced Draft and the Effects of Interchanging of Coal Grates." He covered his subject clearly, showing the various methods used, when forced drafts are advantageous, and the efficiency derived from accurate installations.

The next smoker of the association will be held on the first Thursday in January, at which time P. J. Archer, heating engineer of the Anthracite Coal Dealers, will speak, and will answer all questions from the floor. Some prominent attorney will also address the members. Louis Adler has charge of arranging the various speakers for the meeting. The annual banquet of the association will be held at the Community Hall on January 30, 1929. I. Roll is chairman of the banquet committee.

SALT LAKE MASTERS DISCUSS CODE WORK

George W. Bruerton, veteran Salt Lake City, Utah, master plumber, joined the Salt Lake City Association of Sanitary and Heating Engineers at the regular semi-monthly meeting of that organization, held December 6 in the association suite in the Hooper building. President Ralph D. Evans presided at the meeting, which was well attended. William C. Grant and Henry H. Bockholt made reports on the progress of the code committee, which is co-operating in the preparation of the revision of the plumbing and heating ordinances of that city. One of the important phases is the endeavor to secure the amending of the ordinances to provide that a master plumber may furnish either a surety bond or a public liability policy, instead of the required straight surety bond of $10,000.

The principal disadvantage of the surety bond, according to Mr. Grant, is that it gives the plumbing contractor absolutely no protection, as the bonding company holds the master liable for any amount that it may have to pay.

Under the public liability policy, both the plumbing contractor and the city would be insured. Mr. Grant further pointed out that the amendment would be in the alternative, allowing the master to file either the bond or the liability policy, so that a master would not be forced to carry the more expensive liability policy.

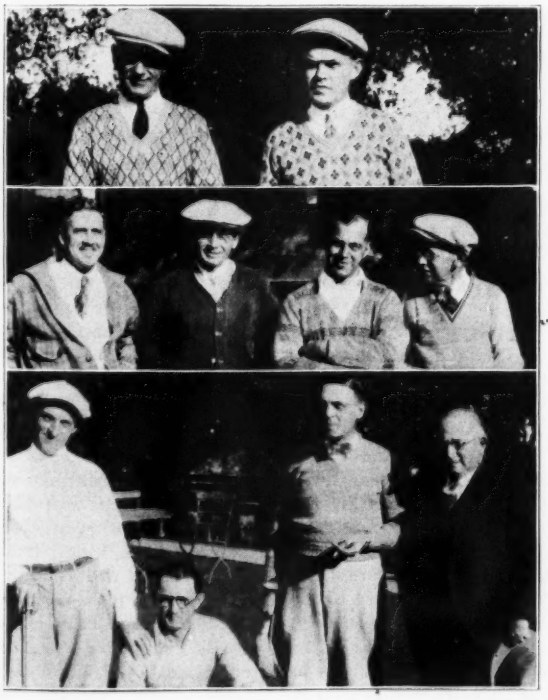
PLUMBING AND HEATING GOLFERS PLAY SPORTY COURSE

The golf section of the Plumbing and Heating Club of San Francisco and the Bay District had all the thrills of professional sport when they gathered at the Orinda Country Club for their regular monthly tournament on Thursday, December 6. President Howard Finch was the member-host for this occasion. Clear skies, no wind, warm sunshine and velvety greens and fairways were sufficient to counterbalance all hazards—both natural and artificial—although there were several places where long carries were necessary to get over the gullies.

Curtiss N. Gilley's driving, and the approach shots of A. G. Atwood were features of the play. Although J. V. Young seldom requires any good luck omens, his guardian angel placed his ball, on one occasion, in such position that when he swung, his iron gave off a sharp metallic clatter and a horseshoe popped up. Anyway, he didn't break his favorite club, and his score speaks for itself regardless of the horseshoe.

Robert Allman distinguished himself by making a birdie. Last Saturday he joined the "Hole-in-One Club" on the Crystal Springs course when engaged in match play with other well known local members of the industry—William Rowe, Curtiss N. Gilley and H. Porter Wilson. Allman's score for that day was 96; Rowe, 89; Gilley, 102; Wilson, 89. Allman and Rowe won seven up.

At the conclusion of the tournament play, a chicken



Top picture: William Rowe and Robert Allman. Middle picture: W. R. Mead, Ans Dalziel, Jackson Noble, J. W. Hottes. Bottom picture: Curtiss N. Gilley, H. Porter Wilson, Howard W. Finch and N. W. Farlow. Photos taken at the recent tournament of the San Francisco Plumbing and Heating Club

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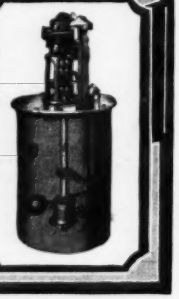

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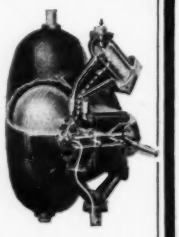

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PLUMBING PRODUCTS

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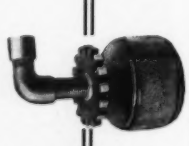
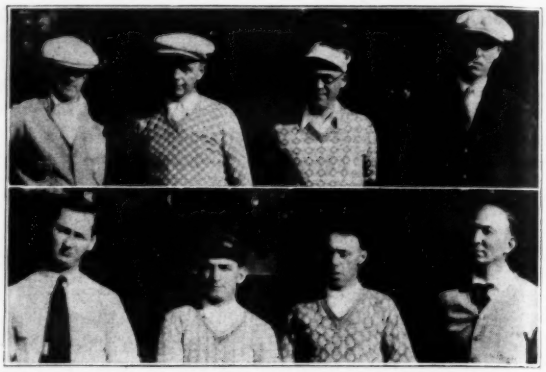
When you want to be absolutely sure that your pipe tests are right, use this Ratchet Plug. It will give a test that will show up any discrepancies in the line at once, is easy to use and will last for years.

Send for our complete catalog of test plugs and fittings.

J. A. ZURN MFG. CO. ERIE, PA.





Top picture: C. W. Higgins, Jack Camp, E. J. Kraus, C. C. Anderson. Bottom picture: W. L. Durkee, J. V. Young, A. G. Atwood, Carl J. Marsh. Photos taken at the recent tournament of the San Francisco Plumbing and Heating Club

dinner was served. The banquets following the club's tourneys are second only to the golf itself, in promoting the spirit of good fellowship which the Plumbing and Heating Club is doing everything possible to foster.

Ans Dalziel won the Class A trophy with a net 75; Howard F. Finch won in Class B with a 74; Class C honors went to A. G. Atwood, who shot a 76. The trophy for high gross was captured by E. J. Kraus, who turned in a gross 128.

Among the cards turned in were the following:

Name	G.	H.	Net	Name	G.	H.	Net
Allman	100	16	84	Higgins	124	34	90
Anderson	109	25	84	Hottes*	113	28	85
Atwood	110	34	76	Kraus	128	30	98
Camp	113	29	84	Marsh	99	12	87
Dalziel	93	18	75	Mead	117	25	92
Durkee	105	25	80	Noble	79	Guest	
Finch	94	20	74	Rowe	103	21	82
Gilley	104	21	83	Wilson	95	17	78
				Young	93	15	78

SHOW WELDING FILM

The Gas Products Association, with headquarters at 333 North Michigan avenue, Chicago, has just recently completed the making of a motion picture film on "Welded Pipes in Buildings." The first public showing was held at the fourth annual conference on welding at Purdue University, on Thursday, December 13.

Professor Samuel E. Dibble of the Carnegie Institute of Technology, Pittsburgh, who was chief director of the filming, was scheduled to present the film before the Ohio Chapter of the American Society of Heating and Ventilating Engineers at Cleveland, December 18, in co-operation with the American Welding Society Chapter of Cleveland.

INSTALL CERTIFIED HEATING IN MODEL HOME

The Heating and Piping Contractors Milwaukee Association learned recently that the Milwaukee Sentinel will install certified heating in its model home to be erected in that city. "Our advertising and promotion of certified heating has shown results in several cases," said Oscar King, secretary of the association, "but we are especially gratified with regard to the model home, as it was entirely unsolicited on our part. Ray Jacobs is the architect for the model home, and he immediately got in touch with us to make inquiries about certified heating, and apparently was immediately sold on the idea."

A. J. Maag, prominent plumber of Milwaukee, Wis., with offices at 131 Mason street, is one of the organizers of the A. J. Maag Investment Co., just incorporated at Milwaukee for $50,000. The firm deals in real estate.

Markets

(Continued from Page 57)

duction processes. Jobbers, for the maintenance of their good delivery service, are placing a great deal of dependence on makers' abilities to grant quick shipments. No changes in factory quotations have been reported.

Range Boilers

The range boiler market is not particularly active where new business is concerned. The majority of wholesalers are cutting down their holdings as far as safety will permit and makers are consequently experiencing light shipments. As in the case of other major commodities, distributors have displayed good interest in their January and February wants by placing future delivery specifications with manufacturers. Stocks at sources are of sufficient breadth as to make early shipments possible. No price changes have been effected by producers.

Boilers and Radiators

Makers' shipments are for the most part being promptly relayed through distributors' hands into consumption. These movements continue to aggregate good weekly tonnages, according to factories. Contracts arranged between manufacturers and wholesalers on the lower price basis are being rapidly terminated. There are practically no complaints of delivery extensions heard. Prices are steady, makers having announced no revisions.

SOUTHEAST

Trend of Buying Is Regular—

Reports in the plumbing and heating field are to the effect that business in the Atlanta territory is fairly regular for this season of the year and that trading so far this month is slightly in the lead over the same period of last year. Especially is the market activity in the heating field showing up well for the month. Production is being kept at a good pace and on the whole shipments are keeping even with production, and while some of the more important commodities show a slight decline in demand, yet sales in general are good, with most wholesalers anticipating a fair amount of business for the month. The nearness to the inventory season and the adjustments for the coming year, continue to affect stocks on hand. In general, supplies are being kept to the minimum level with only the near future needs being considered. The price situation continues firm, with no price sheets being changed, other than was noted recently. Wholesalers in general feel confident of improvement in business early in the month of January, due primarily to the large number of construction projects expected to be started around the first of the month.

Soil Pipe

Wholesalers in general report that the movement into consumption of soil pipe continues good. Most manufacturers are looking forward to the turn of the year for a general improvement, due to the anticipated greater activity in the construction field. Shipments are unretarded. Foundry prices are unchanged.

Pipe—Brass, Steel and Wrought Iron

Reports from jobbers show a slight upward trend in the buying of brass pipe. This condition is quite general, most master plumbers agree, and has been felt for the past thirty days. The demand, though seasonal, is expected to continue good for the next several days, according to jobbers in general. Demand for steel pipe is rather spotty, with buying steady for a few days and then a slight decline. Jobbers are buying wrought iron in much the same

MATCHLESS

We feel that the modern Trenton Ball Cocks and Flush Valves are matchless in quality, performance, and service.

At least it is our aim to make them so and that means that we must put into them every possible quality at our command.

This is what makes the standard of all Trenton Brass Products so high.

Ask to see Trenton Brass Products at your jobbers

The Trenton Brass & Machine Co.
TRENTON NEW JERSEY

Represented by
ROLLIN C. WILSON

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261 Franklin St., Boston, Mass.
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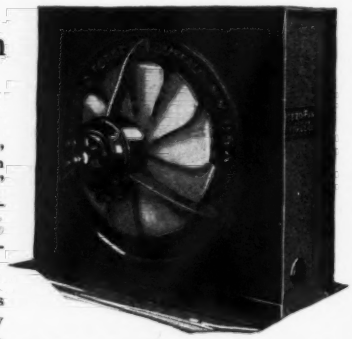
Have you any used tools?

No doubt you have. Chances are, they are lying somewhere around your shop. Possibly new tools have replaced the old. These old tools will bring you dollars if advertised in the "For Sale" columns of DOMESTIC ENGINEERING. Some plumber in another locality may be waiting to obtain these tools, in good condition, at reduced prices. The very low rate of 8c per word makes the Classified Page a good buy.

Real heating economy with Breezo-Fin Units



Buffalo Breezo-Fin Unit Heater
"Heat with Unit Heaters"

In first cost, plus installation cost "Buffalo" Breezo-Fin Heaters save 25 to 50% over direct radiation costs.

As each unit is independently controlled the system is flexible and economical.

Can also be used efficiently in the hot summer months for ventilating.

No matter what type of building you want heated, send us a rough drawing with dimensions and we'll recommend units that will best meet your requirements.

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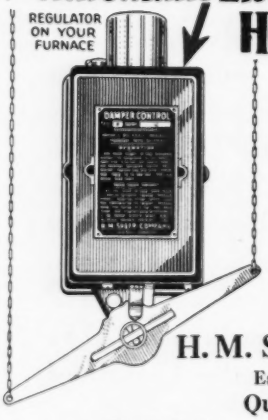
Cut Your Coal Bills with "SHEER COMFORT" Automatic Electric HEAT CONTROL



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manner, striving to keep stocks just sufficient to supply their needs. Manufacturers report no changes in price and deliveries are prompt.

Fittings

The quiet which came over the market with the approach of the new year has affected the movement of fittings and this commodity shows a slight falling off in demand. Jobbers are ordering to meet their immediate requirements only. Factories are making prompt shipments and the supply here is sufficient. There has been no price change made by wholesalers to the trade.

Enameled Ware

Enameled ware is moving rather slowly just now, with contractors ordering materials as they are needed for installation. Reports are to the effect that greater activity is expected in this line after the first of the year. Jobbers, while maintaining a minimum stock, have a good assortment on hand. Deliveries are being made without delay and prices are firm and unchanged.

Pottery

There is no particular activity noted in the pottery market. Buying is seasonal, and is somewhat behind the same period of last month. Jobbers report that stocks are being maintained at a minimum level and that shipments are coming in from manufacturers without delay.

Plumbers' Brass Goods

Business in plumbers' brass goods shows some stimulation and, with the price situation firm, movement in this commodity continues strong and fairly general. Many jobbers are preparing to place orders for after first of the year shipment. Factories are able to make shipments promptly.

Range Boilers

Business in the range boiler market continues to show a gradual falling off and jobbers are keeping only sufficient supplies on hand to meet immediate orders. The month of November showed a decline of activity in this market over the same period of last year, according to a number of sellers in this district.

Boilers and Radiators

Heating contractors continue well occupied and movement in boilers and radiators shows the same briskness that prevailed last week. The recent price advance of 10 per cent on both radiators and boilers has become general in this section. Activity in the heating field is marked, due in part to the large number of construction projects awarded in November and to the continued cold weather in this section. Shipments are being received from manufacturers satisfactorily.

PACIFIC COAST

Average Trading Holds—

December business so far has shown little if any change from the past few months. The demand for materials is only seasonal and, on the whole, business continues to be of a fairly satisfactory nature. Approaching inventory finds most jobbers' stocks well assorted, but not heavy. Price conditions, in so far as jobbers are concerned, remain about the same, with prices more firm in some jobbing centers than in others.

Soil Pipe

Recent price advances have caused the trade to place orders for such material as required for contracts already received and for stock, with the result that there has been a better movement of this commodity during the week than for some weeks previous. Most distributors have well balanced stocks and are receiving fresh material from

foundries in sufficient volume to keep their stocks in shape to make prompt shipments.

Pipe—Steel and Wrought Iron

With the demand for pipe only seasonal, little if any increased activity was noticed during the past week. Most distributors' stocks are well assorted, little if any attention being paid in most instances to current needs or approaching inventories, but rather to having stocks in such condition that all orders received may be shipped immediately. Prices, in so far as distributors are concerned, remain unchanged.

Top picture: Group of those attending the outing of the master plumbers of Orange, N. J. Bottom picture: The vanquished baseball team of the salesmen

Fittings

Purchasing by all concerned continues to be for current needs only, which at this period of the year are not very heavy. Distributors generally have well balanced stocks and early shipment can be obtained from all manufacturing sources. Both manufacturers' and wholesalers' prices remain unchanged since last week.

Enameled Ware

Enameled ware continues to move mainly for present needs, which are not very heavy at this period of the year. Distributors' stocks are sufficient to make possible prompt shipments, and nearby factories are also in a position to take care of orders without delay. Prices are unchanged.

Pottery

Pottery, for this period of the year, is only in fair demand, with all concerned purchasing mainly for current needs only. Distributors as a rule have good stocks and Coast potteries are also in a position to make prompt shipments. Distributors' prices to the trade are unchanged.

Plumbers' Brass Goods

Plumbers' brass goods continue to move in a substantial volume and seem to show little sympathy with the movement of the other major items in the plumbing line. Distributors generally are carrying stocks sufficient to take care of the trade's immediate needs and are replacing merchandise in about the same volume as sales. Prompt shipments can be obtained from manufacturing sources. Distributors' prices to the trade are closely following replacement costs and remain unchanged.

Range Boilers

A moderate demand for this commodity continues, which shows little change from week to week. Stocks in

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PRODUCTS

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The dependability of all EAFCO Products is well known to the trade. There is to them a unique quality that is the answer to why so many of them are sold on repeat orders.

Ask Your Jobber

EASTERN FOUNDRY COMPANY
BOYERTOWN, PENNSYLVANIA

Hinges of the Better Kind

Hinge No. 100—Close-Ruf

GRAND HAVEN BRASS FOUNDRY
Grand Haven, Michigan
Hinges for all types of toilet seats
All hinges can be furnished Crodon Plated if so desired.

distributors' hands are sufficient to insure prompt deliveries, and prompt shipments can also be obtained from manufacturers. Makers have not changed their prices.

BRONX BRANCH ASSOCIATION HOLDS OPEN MEETING

An instructive and interesting open meeting was held on Wednesday evening, December 12, at the Masonic Temple, by the Bronx Branch, Association of Master Plumbers of the City of New York, approximately 75 members and other master plumbers being present. Fred Schmalstich, past state president, and chairman of the entertainment committee, presided and introduced the speakers of the evening.

A. J. Peters, of the Consolidated Gas Co., New York City, who was accompanied by J. P. Daly of the same company, talked on the use of gas appliances and on co-operation between utility companies and the master plumber, stating the company he represents is one of the pioneers in this co-operation. Mr. Peters believes that all gas appliances should be sold by the master plumber, including gas refrigerators, gas incinerators, heaters and the like. He urged his hearers to merchandise, especially on modernization work, which he stated amounts to 80 per cent more than new work.

Motion pictures entitled, "The Arteries of Industry," were shown by the National Tube Co., Henry C. Hoar being in charge of the showing. These pictures were in four reels, tracing methods of transporting water from ancient days, through present day steel making processes, to the comparatively new hammer weld processes. L. J. Aeita, of the Exchange Mutual Indemnity Insurance Co., gave the masters a talk on insurance of that type.

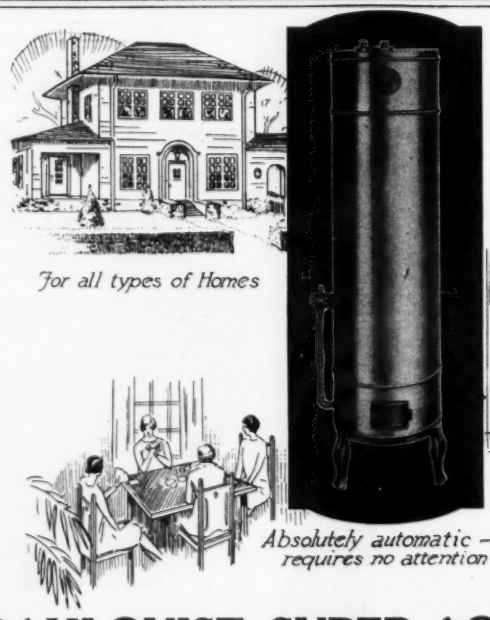
P. D. Rech, of the Hoffman Specialty Co., gave a talk on merchandising, illustrating his remarks by pictures showing a one-pipe heating system using a type of valve manufactured by his company. Mr. Rech was accompanied by V. Donkin, Bronx representative for his concern. Professor Walter S. L. Cleverdon, New York University, told those present of the second annual institute to be held at that institution January 28-30, and also gave some information on the four-year courses in plumbing, heating, and ventilating that are offered by the university.

Before the members adjourned to partake of the refreshments which were served, Past State President William J. Flynn moved that a vote of thanks be given the speakers, this passing unanimously.

ORGANIZE BOWLING LEAGUE IN CONNECTICUT

The master plumbers from several Connecticut cities have organized a bowling league and elected the following officials: Henry J. Foell of Meriden, president; William Groark of C. S. Mersick & Co., New Haven, secretary; D. J. Lynch of Meriden, treasurer. Teams of master plumbers are entered from the following cities: Waterbury, Wallingford, New Britain and Meriden. There are also a team of salesmen and a team from C. S. Mersick & Co. Live interest has been shown for the bowling league, and its members are looking forward to an interesting season.

Paul O. Keppelmann, well known Reading, Pa., master plumber, has joined the ranks in the hole-in-one golf club. Mr. Keppelmann made his hole-in-one on the difficult 130-yard ninth hole at the Reading Country Club, on Sunday, December 2. The hole requires a perfect loft shot, as the green is guarded by a deep trap and in addition a creek flows just short of the trap.



THE DAHLQUIST SUPER-AQUATHERM LEADS!

The new Dahlquist Anaconda copper patented automatic storage unit, since its introduction recently, has rightfully earned its place as one of the most popular of all hot water supply systems. Its perfect design, careful construction, and the use of the Dahlquist Aquatherm principle of water circulation with the consequent economy in fuel have given it the heartiest endorsement of the plumbing trade.

Write for illustrated booklet describing the Super-Aquatherm and other Dahlquist Products

DAHLQUIST MANUFACTURING CO.
A, 2nd and West 3rd Streets :: SOUTH BOSTON, MASS.

Woman's Page

Christmas is only a few days ahead on the calendar, and everyone is making the last-minute purchases, and the final preparations for Christmas festivities. The Detroit auxiliary has had a most successful bazaar, which is mentioned on the next page, and other auxiliaries have had bazaars to add to the funds in the treasury, and give members an added opportunity to select attractive gifts. Many other auxiliaries are planning for Christmas parties, or, perhaps, a Christmas tree for the children. Everyone likes to read about holiday celebrations, and social chairmen will be looking for suggestions for their parties for this season next year. So all the secretaries can be sure of appreciative readers of their stories, on this page, of their Christmas parties.

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Woman Opens Plumbing Business in Atlanta

Miss Margaret Jackson, who for over twenty-five years has been with the Ford Plumbing & Heating Co., Atlanta, Ga., has entered the plumbing and heating business for herself at 170 Hunter street, Southwest. Her company is to be known as the Jackson Plumbing & Heating Co.

Buffalo Auxiliary Holds Luncheon Before Meeting

The Women's Auxiliary of the Master Plumbers' Association of Buffalo held its monthly meeting at the master plumbers' room, which is the regular meeting place, on Tuesday, December 4. This meeting was preceded by a luncheon at the Archway Tea Rooms. It was planned to have a Food Craft Shop luncheon next month, which is to be followed by cards. After the meeting the auxiliary went to visit the American Radiator Co.'s showroom, the company having extended them an invitation.

Florida Board Meets in Orlando

A board meeting of the Women's Auxiliary to the Florida Master Plumbers Association was held in Orlando on Monday, November 26, there being fourteen in attendance. Mrs. R. E. Martin of Miami, president of the state auxiliary, called the meeting to order, and after a short prayer a busy session followed. Interesting reports were heard from various auxiliaries in the state, which indicated a promising future for the state organization. A motion in favor of raising the national dues to 25 cents was made and carried. Interest was expressed in the work of Miss Ida M. Anderson of the Plumbing and Heating Industries Bureau; also in the American Needlework Guild. A motion was passed that the state auxiliary co-operate with its member auxiliaries in rendering assistance to the guild in its very commendable charity work.

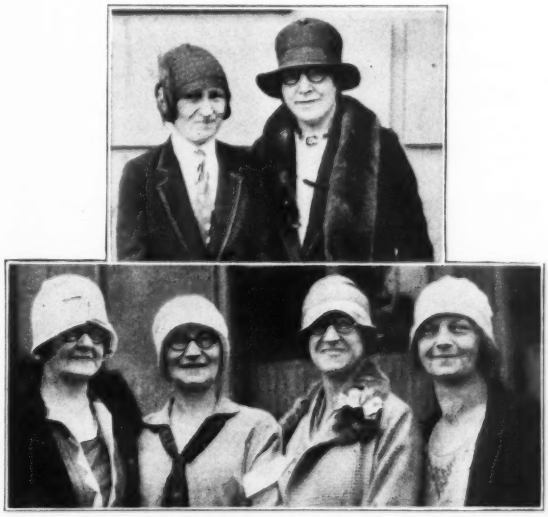
Since the publication of the list of contributors toward the storm relief fund, additional checks have been received from the following: The Ladies Auxiliary of Milwaukee, Wis.; the Ladies Auxiliary of Detroit, Mich.; the Tulsa, Okla., Women's Auxiliary, and Mrs. C. W. Miller, treasurer of the A. P. C. of Cleveland. Deep appreciation was expressed to all for the help given the sufferers in their time of trouble.

A motion was passed to create a charity fund under the control of the state president, to be instantly available to her for emergency use. During the session a representative from the board meeting of the Master Plumbers Association called and announced that their state president, Mr. Quinlan, had been requested by vote to secure a bus for his trip to the next board meeting, which is to be held in Jacksonville in February, and that all auxiliary members along the route were invited to accompany him.

Mrs. C. F. Reicken of the Orlando auxiliary presented a basket of beautiful flowers to Mrs. R. E. Martin, the state president. A delicious chicken luncheon had been arranged in the pink room of the "Rendezvous" by the Orlando Master Plumbers Association and the Women's Auxiliary for all those in attendance at the board meetings of the state association and auxiliary. It was much enjoyed by all present.

New Officers Elected by Milwaukee Auxiliary

Mrs. O. Waskow has been elected president of the Ladies' Auxiliary of the Milwaukee Master Plumbers' Association at a meeting held Monday, December 3, at the Stratford



Top picture: Mrs. J. F. Scott of Longview and Mrs. R. E. Thompson of Tacoma. Bottom picture: Miss B. M. Craven, Mrs. J. B. Moneur, both of Everett; Mrs. F. M. O'Connell of Seattle, Mrs. H. A. Burns of Everett. Photos taken at the recent convention of the Washington State Association of Master Plumbers

Arms Hotel at Milwaukee. Other officers elected include: Mrs. F. Westphal, first vice president; Mrs. G. Schoenrock, second vice president; Mrs. Charles Pelunek, third vice president; Mrs. Henry Weber, recording secretary; Mrs. Louis Schmaus, corresponding secretary; and Mrs. R. Wenzel, treasurer. The meeting Monday consisted of a business and dinner meeting.

The ladies plan an extensive entertainment program for

Every Plumber Should Know About the Various Types of

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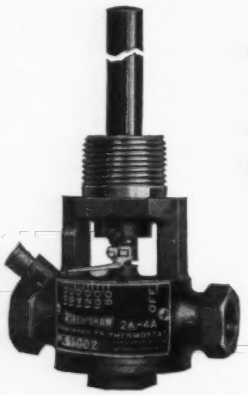
Thermostats



Throttling Type

Throttling Type

For Side Arm Water Heaters
or
Automatic Storage Water Heaters
All sizes from ⅜ to 2 inches

Robertshaw Throttling Type Water Heater Thermostats are fully covered in

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Write for it!

Snap-Action Type

For Storage Water Heaters
and
Furnace and Boiler Temperature Control. Gas Pipe sizes from ½ to 2½ inches

Robertshaw Snap-Action Thermostats are illustrated and described in

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Snap-Action Type

Room Temperature Control

Room Temperature Control

Entirely Gas operated
Non Electric—No Volatile Liquids
Easily Installed
Attractive in appearance
Will control the Room Temperature within a range of 1½ degrees plus or minus

Robertshaw Room Temperature Thermostats are fully described in

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Write for it!

Any or all of the Above Circulars are yours for the Asking.

ROBERTSHAW THERMOSTAT CO.
YOUNGWOOD, PA.

the coming year, beginning with the entertainment of the lady visitors at the convention of the Wisconsin Master Plumbers' Association in January. A dance, given at Wells-Colonial hall on November 27 served to wind up the activities of this year's entertainment committee, which is headed by Mrs. Fred C. Kuetemeyer. It is expected that Mrs. Waskow will appoint committees for the ensuing year at the next meeting of the auxiliary, to be held Monday, January 7. At that time, too, final plans for the entertainment of the visitors who come to the convention will be completed.

Detroit Auxiliary Holds Bazaar, Dinner and Dance

The Women's Auxiliary of the Master Plumbers' Association of Detroit, Mich., met at the Food Craft building last month and had a most enjoyable luncheon, after which a food expert delivered a lecture on the different values of food and ways of preparing it. After the lecture, Mr. and Mrs. A. W. Phillips showed motion pictures of scenes taken during their European trip during the early part of this year. Mrs. Phillips is a member of the auxiliary, and Mr. Phillips a member of the master plumbers' association. Each scene was described to the audience in a most interesting manner, and all present thoroughly enjoyed the pictures and descriptions. About one hundred members and guests attended.

On December 6 the Detroit auxiliary gave its annual Christmas bazaar, dinner and dance, which was a great success. More than one hundred members and friends sat down to a wonderful dinner prepared by the committee in charge. Mrs. Henry Ziegler was chairman of the commissary department, and Mrs. Meirs and Mrs. William Schonhofen were in charge of the bazaar. They had a most attractive booth with a grab bag and fish pond for the children. Mrs. Hazel Nawrot was in charge of the dining-room and decorations, and, with her corps of helpers, saw to it that everyone was well supplied with good things to eat. After this, the room was cleared, and many of the men played cards until nine o'clock, when an excellent orchestra struck up music for dancing, and for three hours nearly everyone was on the floor. Altogether it was one of the most successful parties the organization has ever given, and members were very happy over it, and felt it a good return for all the work which had been put into preparations. Meetings to sew for the bazaar had been held regularly for several months.

On December 27, a Christmas party will be given for the children, with a dinner afterward for members and their families.

In addition to these social affairs, the members of the Detroit auxiliary find time to help those less fortunate. Money was voted at the business meeting on December 4 to be spent on families, with whom the members are personally acquainted, who have had very hard times and receive help from no other source.

To show their appreciation for the use of the master plumbers' clubhouse for meetings and parties, the ladies recently presented the clubhouse with a new cook-stove, and a number of new dishes. The members of the men's organization were much pleased that the ladies felt that one good turn deserves another.

Minneapolis Auxiliary Gives Children's Christmas Party

The Women's Auxiliary to the Retail Plumbers' Association of Minneapolis, Minn., has planned a Christmas party for the children, to be held today, December 22, at the headquarters of the organization. The committee in charge of this party consists of Mrs. Victor Beaudry, chairman, and Mesdames W. H. Staddan, N. Jacobson, G. Worthingham and P. J. Carlson. Santa Claus is scheduled to appear promptly at eight o'clock.

ORGANIZE NEW COMPANY TO SUCCEED THOMPSON-STARRETT CO.

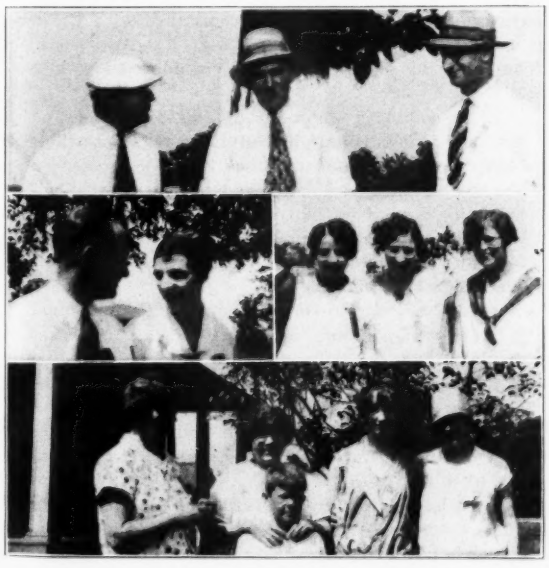
Announcement is made of the organization of Thompson-Starrett Co., Inc., to acquire the assets of the Thompson-Starrett Co., New York City builders, who also are large heating and ventilating contractors. It is also announced that 160,000 shares of $3.50 cumulative dividend preference stock of no par value, carrying full paid warrants for an equal number of common shares, have been issued, and have been subscribed for in full. Employees were given an opportunity to purchase 50 per cent of these, the balance being retained by a banking group which has handled the additional financing.

No change in operating personnel is contemplated. The board of directors now includes Louis J. Horowitz, chairman; Harold O. Barker, J. E. Bierwirth, Rogers Caldwell, Walter P. Chrysler, S. Sloan Colt, W. H. Driscoll, Edward P. Farley, Leo J. Fischer, Herbert Fleishhacker, Samuel L. Fuller, Edward W. T. Gray, William M. Greve, John W. Hanes, Jr., Charles Hayden, Richard F. Hoyt, G. Hermann Kinnicutt, Robert Lehman, Maurice Newton, Morgan J. O'Brien, John W. Prentiss, William B. Scarborough, Elmer Schlesinger, D. A. Schulte, Casimir I. Stralem, Harold E. Talbott, Jr., William H. Wheelock, Thomas Williams and William Wrigley, Jr.

DULUTH MASTER PLUMBERS HOLD MEETING

The Duluth (Minn.) Association of Master Plumbers held a meeting on Tuesday, November 27, which was well attended. Current business was taken care of and plans were also discussed pertaining to next year's activities of the association.

William G. Bergner, secretary of the Plumbing and Heating Industries Bureau, Chicago, Ill., attended the meeting and was the principal speaker of the evening. He recommended keeping in close touch with what other master plumbers are doing, and also groups outside of the plumbing and heating industry. He said that if the master plumber and heating contractor is to make his



Top row: O. N. Fischler, Woodward-Wanger Co.; James Bradford, W. J. Marshall. Middle row: Robert Gormly, Wolverine Brass Works; Miss Gladys Lee, Mrs. F. F. Morrow, Mary Bigley, Mrs. E. L. Snyder. Bottom row: Mrs. William Houston, Mrs. George Virtue, Miss Nancy Thomas, Miss May Thomas, Jim Houston (front). Photos taken at outing of New Castle plumbers

Haas

Flush Valves for use in combination with all styles of bowls for all classes of service to operate under low or high pressure water supply.

Water Closets for every type or class of service.

Frost Proof Closets. Direct flush or after flushing.

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Philip Haas Co., Dayton, Ohio

SIMPLIFIED VAPOR HEAT

This complete Vapor System, operating on a boiler pressure of two ounces, uses a minimum of special fittings.

Very low cost.

Liberal trade discount.

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Hutchison Regulator Sales Corporation

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HUTCHISON SYSTEM

FLAGG

FF

Merry Christmas and Happy New Year

STANLEY G. FLAGG & COMPANY, Inc.
1421 Chestnut St., Philadelphia, Pa.

Tank Fittings of Quality

1856 "McSHANE" 1928

The ORIGINAL Compound Lever Ball Cock. Elevated, Low-Down, Top and Bottom Supply Tank Levers and Valves.

McSHANE BELL FOUNDRY CO.
Baltimore, Maryland

SMOOTH-ON added 14 years to the life of a condenser shell

SMOOTH-ON reinforcement—in perfect condition after 14 years of service
This cast-iron shell had worn away to a fraction of its original thickness

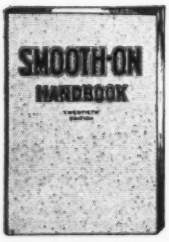
CORROSION caused by the chemical action and flow of impure water thinned this portion of the shell of a surface condenser to hardly more than a third of its original thickness. Finally in 1914 a crack developed and leakage started.

The Engineer built up the weakened internal surface with SMOOTH-ON No. 2, and kept the condenser in continuous service for more than 14 years. On final disassembling and inspection he was so astonished at the hardness of the SMOOTH-ON No. 2 patch, the tight adhesion to the original metal and the way the SMOOTH-ON had resisted further corrosion, that he sawed out the above section and presented it to us. The dividing line between the SMOOTH-ON No. 2 on top and the remaining original metal below is clearly shown. No corrosion developed upon the exposed SMOOTH-ON surface, which took on and retained an outer protective coating.

In addition to its exceptional ability to resist corrosion, solidified SMOOTH-ON No. 2 becomes appreciably denser and harder and bonds tighter as it ages. A SMOOTH-ON No. 2 reinforcement therefore becomes *stronger* after long service.

SMOOTH-ON No. 2 prevents or stops pressure and fluid leaks at cracks, breaks, joints and porous spots, etc., and where judiciously applied will do its work perfectly. A SMOOTH-ON repair or joint costs the least in lost time, labor and material, and is dependable. Try SMOOTH-ON No. 2 *first*, and you will usually save the far greater cost of welding, hot riveting or new parts.

Get SMOOTH-ON No. 2 in 1 or 5-lb. can, or 25, 50 or 100-lb. keg from your nearest dealer or if necessary direct from us.



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Twentieth Edition—136 pages of data—193 diagrams, pictures and practical hints on at least 200 different uses for SMOOTH-ON. Every progressive engineer should have this book—get your copy NOW.

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SMOOTH-ON MFG. CO.
Dept. 12, 570 Communipaw Ave.
Jersey City, N. J.

Please send copy of the SMOOTH-ON Handbook, 20th Edition.

NAME.....

ADDRESS.....

.....

12-22-28.

Upper left picture, front row: J. F. McNamara, Stamford, president, Fairfield County Association; L. D. Goulden, Stamford, secretary; N. Hamilton, Stamford. Back row: Mrs. Joseph Berger, Bridgeport; Mrs. J. F. McNamara, treasurer, Fairfield County auxiliary; Mrs. N. Hamilton, Mrs. Howard Bryant, Bridgeport. Upper right picture: Fred L. Terwilliger, C. C. Chevalier, both of Thatcher Co. Middle row: Mrs. F. W. Quinn and daughter, Irene; Mrs. Joseph Palliser and son, Charles; Mrs. A. B. Dibble and daughter, Charlotte; Mrs. Thomas F. Nolan, Mrs. A. A. Mills. Lower left picture: J. F. Carr, Bookhout & Law, Inc.; Joseph F. Mongrain, Bridgeport. Lower right picture, front row: Miss Mildred Dawson, Mrs. D. M. Coss, Miss Martha Collins; back row: Joseph Delaney, Daniel M. Coss, all of Waterbury, Conn.

position secure as the logical outlet for the sale of plumbing and heating materials and services, he must so manage his business that the best relationships are established between himself and the public. Mr. Bergner feels that more attention should be given to those things which will affect business in the future.

The speaker went on to explain that many business methods and practices in effect five years ago do not fit into present day management of business, and he feels that readjustment must be made in accordance with the modern methods.

The following program is being considered for the year 1929:

1. A complete check-up of the plumbing and heating establishments in Duluth in regard to their physical make-up and methods in use.
2. A check-up on the kind and quantity of advertising carried on in Duluth by the associations, wholesalers, master plumbers and heating contractors, and also individuals during 1928, to determine the need of advertising.
3. A campaign to bring about an improvement in store arrangements and the featuring of better displays.
4. Consideration to be given to featuring displays at worthwhile community exhibitions.
5. Association meetings to include a study of the best methods of promoting the plumbing and heating business.
6. Study to be made of the subject of proper office help and its relation to developing public interest in our services.
7. The securing of proper legislation for proper inspection of plumbing installation.
8. A study of better employee relations.
9. The giving of the association's support to the New Home Modernizing movement being launched in Duluth.

MERRY CHRISTMAS!

When you read this, we hope that your Christmas shopping will have been done for weeks. Ours won't.

Many a man who has recited that melancholy old poem, "Backward, turn backward, O Time in thy flight, make me a child again just for tonight," will prove to be a strong competitor for his son's toys on Christmas day. Like all good things, the sentiment of Christmas is simple and more or less child-like, for "of such is the Kingdom of Heaven." Here's hoping you've enough of the kid left in you to extract the last ounce of fun from the Christmas celebration.

PITY THE POOR PLUMBER! A CHRISTMAS STORY

John was a plumbing and heating man, a good and conscientious one. Of course, he had men working for him, but on Christmas day they were, naturally, with their families. When the telephone rang, just as his own family was opening the presents around the tree, John answered it. A good customer was in trouble—something wrong with the heating plant and the children couldn't gather around the tree until the old house was warmed up.

So John trotted over and did the necessary work. When he was finished, his customer pressed upon him a steaming cup of coffee and a big piece of the Christmas fruit cake.

John had hardly settled at home again when he had another call. He rushed away to stop a fierce leak which threatened to make a wet Christmas of it at another customer's home. When he had finished the customer insisted that he partake of some fine light and dark meat carved from the Christmas turkey. John was too polite to refuse.

Just before his own Christmas dinner was served, John had another call, even more serious than the other two. He did his work, and when he was finished he had to sit down to a big dish of plum pudding, while the children of the family each presented him with choice bits of candy from their individual boxes.

At last it seemed that John was free for the day. He had a little play with the children before his wife announced that the dinner was on the table. John sat down, carved for his family, filled his own plate—and then discovered that he had no appetite! He made a botch of explanations to his wife, who couldn't understand how he could neglect the meal over which she had labored so lovingly. So he tucked in, in the good old Christmas spirit, and ate so heartily that his wife smiled proudly.

And the next day John spent in bed with little green spots dancing before his eyes, feeling as if he wouldn't eat again for a year at least. The strange part of it is that this year, when John says "Merry Christmas," he'll really mean it.

L. N. O'F., Los Angeles.

"SY" SEZ

Two Scotchmen were walking down the street when one of them saw a fifty-cent piece and picked it up. The other borrowed* it from him and had his eyes tested.

Just about the time a man gets everything on a smooth basis at the office, something goes wrong at home.

Son: "Daddy! There's a burglar."

Father, creeping up to bed: "How—how many times have I—I told you not to point?"

"SY" MARTIN, Owensboro, Ky.

Mary had a little dog,
His pedigree was tony,
He made a dash across the street
Honk—Honk—bolognee.

"SALES TALKS."

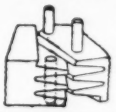
The average dog has three ages—pup-age, cur-age and sausage.

---

*There's something wrong with that story, Cy. It's believable, all excepting the borrowing.

L Y T.

The Built-Well V-Lock Joint



Patented

Sectional view of joint, turned upside down to show how dowels are inserted from bottom. Moisture only makes them tighter.

Finish the bathroom with a Built-Well Toilet Seat. Made in a wide variety of styles and colors. Ask your jobber or write us direct.

BUILT-WELL MFG. COMPANY
300 North Robey Street
Chicago, Ill.

AUTOMATIC COAL BURNER

FEEDS COAL TO THE BOILER
REMOVES THE ASHES
REDUCES COAL BILLS
SAFE
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DEALERS WANTED

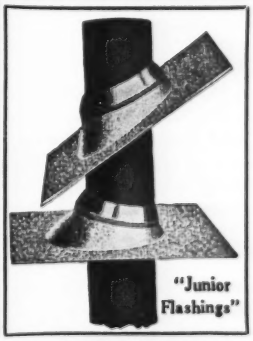
WRITE TO
DOMESTIC SALES CORPORATION
121 Livingston St. :: Brooklyn, N. Y.

All Lead-Copper-Galvanized Iron

SIMPLEX AND JUNIOR FLASHINGS FOR EVERY ROOF CAN BE HAD IN EACH OF THE ABOVE METALS.

Write for prices and full information on the easily installed, durable SIMPLEX and JUNIOR Flashings.

SIMPLEX MFG. CO.
2644 N. Ashland Avenue
Chicago, Illinois



"Junior Flashings"

SIGNET FLOOR DRAINS

Patented

You can't possibly go wrong when you install a Signet Floor Drain. They require the least fuss and bother at installation and none at all after. They're worthy of your consideration. Ask your jobber about them or write us direct for full information. *Sell Signets.*

Crampton-Farley Brass Co.
Kansas City, Mo.

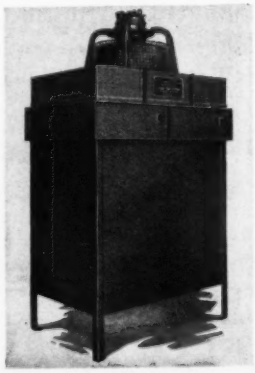
Clarage Ceiling Type Unit Heater. Note deflector which directs heated air downward. As heated air descends, it spreads out cone-shaped over working area.

Efficient Results Depend Upon Rapid, Uniform Distribution

THE Clarage Unit Heater is equipped with a centrifugal fan as shown in the illustrations.

In factory heating, where efficient results depend primarily upon a rapid, uniform distribution of heated air, the importance of this unique design cannot be over estimated. This design enables the Clarage Unit Heater (and only the Clarage Unit Heater) to deliver heated air in all horizontal directions and at high velocity.

With Clarage Unit Heaters, comfortable temperatures are easily maintained—maximum economies effected. First, because the delivery of heated air in all horizontal directions means that every part of the working area of the building receives an equal, uniform supply of heat—no parts slighted. Second, because the heated air, being forced out at high velocity, proves effective even at relatively great distances from the heater.



Clarage Floor Type Unit Heater

To select Clarage Unit Heaters is to have a satisfactory installation, and to save on both first and operating costs. If you have any type or size of industrial heating problem coming up, it will pay you to write us for complete details.

CLARAGE FAN COMPANY
Kalamazoo, Michigan
Sales Engineering Offices in Principal Cities

CLARAGE Unit Heaters

with AEROFIN STANDARD EQUIPMENT

All Clarage Unit Heaters utilizing steam or hot water have Aerofin (The Standardized Light Weight Heater) as the heating element. Aerofin is made of copper and brass—non-corrosive, imperishable, light-weight. It is highly efficient guaranteed steam and water tight. Engineers endorse it.

Bath a Day Movement

We recommend to the attention of every alert plumbing contractor the booklet, "The Story of the Bath," along with the stickers, window transfers, posters, etc., which make up the material for a Bath a Day campaign. Association secretaries and other officers who are looking for something to make this winter the livest in activity they've ever had, will find in the Bath a Day campaign something which will inject life into the membership and give each man a definite idea of what the association can do for him in the way of getting favorable publicity.

169

In 169 cities and towns in the United States the booklet, "The Story of the Bath," has been placed by plumbing contractors for supplementary reading in the schools. In a number of cities individual master plumbers have distributed copies of the booklet to meetings of such clubs as the Rotary, Kiwanis, Lions, etc.

Either of these uses of the booklet can be made the basis of a Bath a Day campaign which will result in giving the community a better opinion of the plumbing contractor and incidentally make selling easier.

Epigrams—For Your Use

Some girls get prettier as they grow older. Practice makes perfect.

* * *

Love and reason are seldom on speaking terms.

* * *

Why does a man lose his nerve just when he needs it most?

* * *

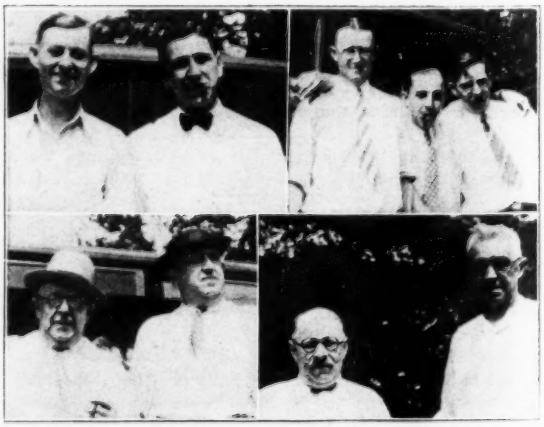
It is much easier to form a new habit than reform an old one.

* * *

You can pick fools by their questions, and wise men by their answers.

* * *

Conversing with a man who always agrees is like talking to an echo.

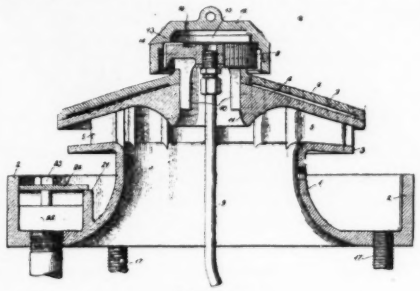


Top row: George Schuler, F. C. Bittenbender, Thomas M. Jaco of Thatcher Co., Earl E. Knause, of Bethlehem Plumbing Supply Co., E. A. Grote, manager of Bethlehem Plumbing Supply Co. Bottom row: E. D. Swoyer, F. J. Boyer, William Deihl and H. A. Koons. Photos taken at the outing of the Allentown Master Plumbers' Association

Plumbing and Heating Patents

Heating Department

1,685,804. Liquid-Fuel Burner. Charles B. Buerger, Pittsburgh, Pa., assignor to Gulf Oil Burner Company, Pittsburgh, Pa. A liquid fuel burner comprising a base provided with an interior passage for air, a cover overlying said base and spaced therefrom so that air from

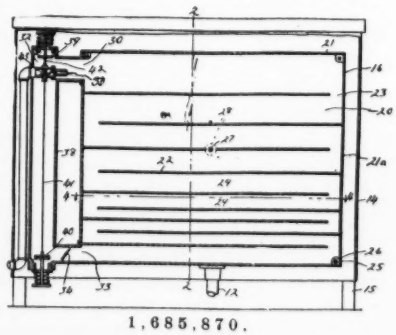


1,685,804.

said passage is directed laterally between the top of the base and the cover, a burner plate supported on said cover in spaced relation therewith, the said cover and the said burner plate provided with passages registering with the air passage of said base, a distributer for a liquid fuel supported above said burner plate in spaced relation whereby a part of the air from the passage of the base and from the passages of the cover and burner plate may flow over the burner plate under said distributer and means for supplying liquid fuel to said distributer.

* * *

1,685,870. Internal-Combustion Radiator Unit. Frank W. Shuell and Elmer E. Ledbetter, Detroit, Mich., assignors to The EverHot Heater Company, Detroit, Mich.

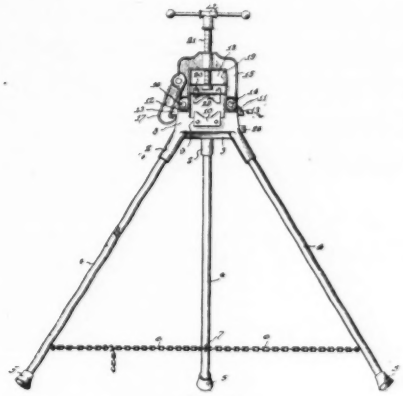


1,685,870.

A heating apparatus of the internal combustion type comprising a combustion chamber having an air inlet at the top thereof and an elongated flue passageway extending downwardly therefrom, means for introducing fuel into the upper portion of said combustion chamber adjacent said air inlet, and means for forcibly withdrawing the products of combustion from the lower portion of said combustion chamber.

* * *

1,686,023. Pipe Vise and Stand. Leo McCloskey, Essex, Ontario, Canada. A vise and stand comprising a table having a front edge thereof provided with integral end diverging leg sockets and its rear edge with a leg socket of greater angularity than the first mentioned leg sockets, legs in all of said sockets, an integral base on the front edge of said table, integral apertured ears on said base above the sockets at the front edge of said table and affording laterally projecting keepers, gripping members fastened to said base intermediate the ends thereof, a reversible vise member pivotally connected to one of

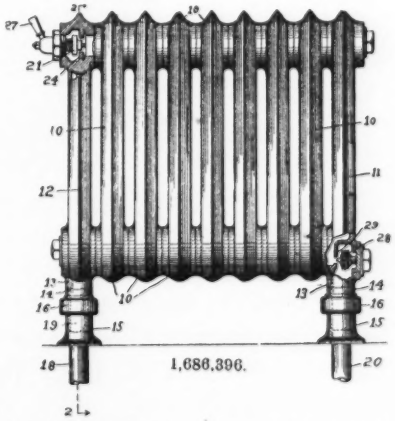


1,686,023.

said apertured ears, and engageable with the other ear, a hook carried by said vise member and engageable with the keeper opposite the pivotal connection of said vise member, and an adjustable gripping member in said vise member opposing said gripping members.

* * *

1,686,396. Radiator. Thomas A. Ridder, Wollaston, Mass. A radiator, comprising in combination, a series of connected heat radiating sections, one of said sections being divided vertically by an interior wall to form a separate conduit at one side of the section, a vertically disposed inlet port formed centrally of the lower end of said section, said wall being bent at its lower end to form a curved passage communicating with the vertically disposed inlet port, a valve at the upper portion of said con-



1,686,396.

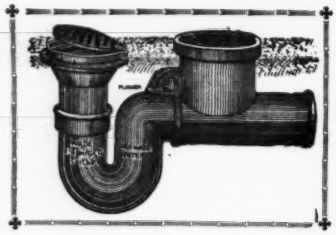
duit for controlling the passage of fluid from the conduit into the remaining portion of the section, a hollow leg having a pedestal for supporting the section from the floor and provided with a fluid passage leading to said port, and means for connecting the leg to a source of fluid supply.

* * *

1,687,390. Combination Gas and Oil Burner. Eugene Ritter, Monroe, La. A combination burner of the character described, including an annular gas casing, a circular series of nozzles at one end of the gas casing, cer-

E-Z
RADIATOR HANGER
for ALL Tube Type Radiators
The most complete stock on the market—ready for immediate shipment from principal cities. Use this strong, simple, one-bolt hanger. It pays to insist on the E-Z.
HEALY-RUFF CO.
770 Hampden Ave. St. Paul, Minn.
½" PIPE
Style R

This Wade Accessible Flushing Clean-Out Floor Drain Deep Water Seal Trap Combination without back water gate is made of heaviest cast iron for longest, trouble-free service. Order them from your jobber.



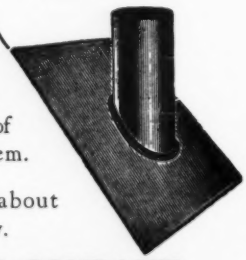
WADE IRON SANITARY MFG. CO.
551 FULTON STREET :: CHICAGO, ILL.

Raymond Lead Roof Flanges are made primarily for long hard service and easy installation.

Raymond Lead Flanges

Your jobber can supply you with them for any roof job or problem.

Ask him about them today.



Dutch Boy Products
Hoyt Metal Products
Raymond Lead Products

NATIONAL LEAD COMPANY
900 W. Eighteenth Street CHICAGO

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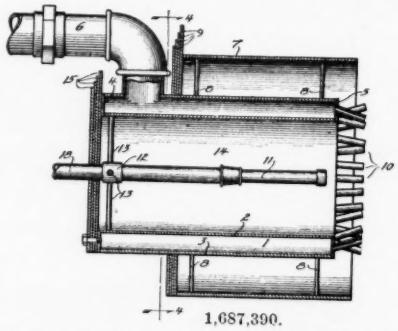
DOMESTIC ENGINEERING
1900 PRAIRIE AVENUE, CHICAGO, ILLINOIS

tain of said nozzles inclining inwardly and other of said nozzles inclining outwardly, an oil burner located centrally relatively to the series of gas burner nozzles, an

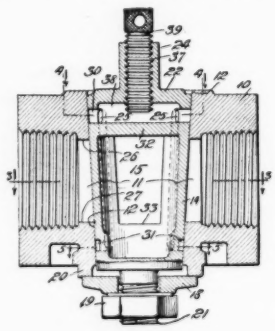


1,687,390.

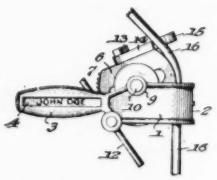
air casing around the gas casing, means controlling the admission of air to said casing, said air casing projecting beyond the forward end of the gas casing and partially enclosing the series of gas burner nozzles.

* * *

17,101. Valve. Sven Johan Nordstrom, Oakland, Calif., assignor to Merco Nordstrom Valve Company, San Francisco, Calif. A valve comprising, a casing having a longitudinal passageway therethrough and a tapered valve seat formed transversely of the passageway, a tapered plug seated in the valve seat and having a hole adapted to register with the passageway, means for holding the



17,101.



1,687,210.

plug against its seat, the valve seat being provided with four longitudinal grooves spaced substantially 90 degrees apart extending above and below, respectively, the planes passing through the upper and lower sides of the passageway through the valve seat, the bearing surface of the plug being provided at the larger end of the plug with two transverse grooves lying in the plane passing through the upper ends of the longitudinal grooves and at the smaller end of the plug with two transverse grooves lying in the plane passing through the lower ends of the longitudinal grooves, each pair of transverse grooves being substantially 90 degrees in length and arranged parallel with the hole through the plug, the ends of each pair of transverse grooves being spaced substantially 90 degrees apart, a reservoir in the plug for containing lubricant, connections between the reservoir and one pair of transverse grooves, and means for putting the lubricant in the reservoir under pressure to force it into the grooves.

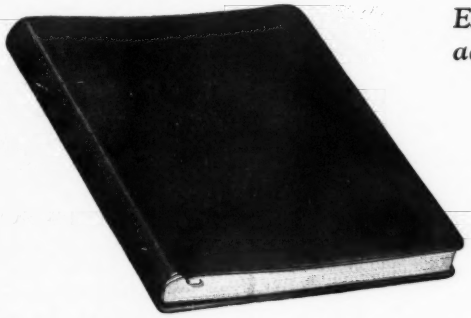
* * *

1,687,210. Pipe and Tube Bender. Walter Estes Holsclaw and Harry Elston Holsclaw, Evansville, Ind. The hereindescribed portable pipe and tube bender, comprising a body having a pipe-engaging hook at one end and a handle at its other end to enable said bender to be held by the operator, a sheave having a grooved edge and

THE NEW SPEEDLOK

Domestic Engineering Catalog Binder

Especially designed for the standardized catalog page adopted by the plumbing and heating industries



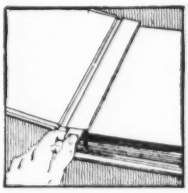
The SPEEDLOK is a quick operating catalog binder designed to fit reprints of catalog pages in "Domestic Engineering Catalog Directory" as well as all other catalog pages that conform to the standards adopted by the plumbing and heating industries.

Easy and speedy operation are special features of this binder. A slight pull on the concealed bar under the top cover unlocks mechanism when sheets are inserted. Equipped with bar for removing sheets when changes are made.

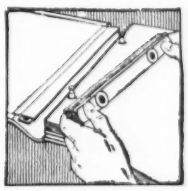
Minimum capacity 1¼ inches. By simply unscrewing extension posts capacity can be extended to 2¼ inches. Works perfectly for all requirements—either a few sheets or filled to capacity.

Covers are bound in heavy black Levant Grained Fabricoid, semi-flexible, very durable and attractive looking.

Price of binder—$3.00 each. ***Prices on quantities on application.***

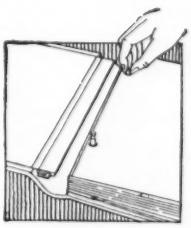


To unlock Binder—Pull out slide bar in top wing. Top cover will immediately fall back.



To lock Binder—bring top wing back over the posts—be sure posts fit in the holes in the top wing—then push in slide bar.

Separate the sheets where desired and slip sheets off the posts. Take out sheets or put in new ones as desired. These three moves take but a few seconds. Each operation is a natural one.



To increase or to decrease the capacity of the binder is a simple operation. The two posts are so constructed that they can be easily raised or lowered to meet the height requirements. Binder posts can be extended from 1¼ inches to 2¼ inches.

For Jobbers' Salesmen—

The loose-leaf system reduces to the minimum the bulk and weight of catalog material required by the salesman. Only matter actually required for selling purposes need be carried in the binder. It does away with the necessity of carrying entire catalogs, booklets and circulars of various sizes and shapes.

Salesmen using the loose-leaf system have a great advantage over men not using this equipment—to say nothing of the added convenience, time and labor-saving features.

With a modernly equipped loose-leaf binder, the salesman can present his products in a more comprehensive manner than it is possible to accomplish by the old methods. Having all his material up to date in compact form and easily available, he can show latest specifications, answer questions or quote prices more readily.

For Plumbing and Heating Contractors—

Many master plumbers and steamfitters assemble working catalogs from standardized catalog sheets filed in binders.

Domestic Engineering is in position to furnish without charge, upon request, loose sheets—which are reprints from catalog pages appearing in "Domestic Engineering Catalog Directory"—of several hundred manufacturers. They are standard catalog page size—10⅝x8½ inches—are printed on a good grade of light paper and punched according to the standard adopted by the plumbing and heating industries. These sheets fit the SPEEDLOK binder.

When orders for binders are accompanied by requests for Directory reprints the binders will be equipped with the sheets desired and shipped complete.

Write for full details regarding loose sheets and binders.

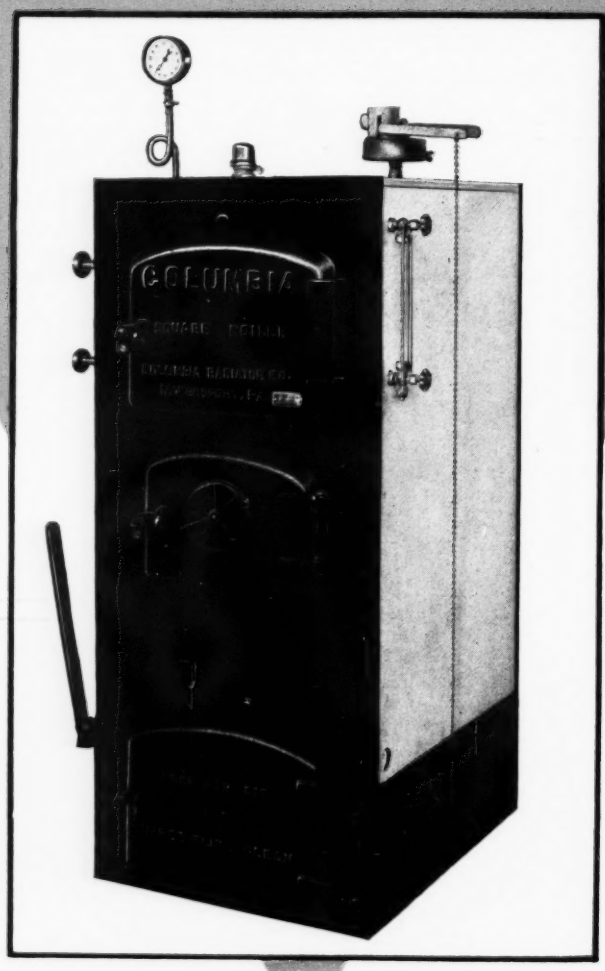
Domestic Engineering Company

1900 Prairie Avenue (***Directory Dept.***) **Chicago, Illinois**

COLUMBIA

JACKETED BOILER

~an ideal boiler for the home



- Large ample flues
- Long flue travel
- Large heating surface
- Rapid and efficient heating
- Asbestos insulation minimizes heat losses

- All interior parts accessible
- Draft door on side of boiler
- Erection of boiler and jacket very simple
- Black enameled doors
- Black and gray steel jacket

Boiler No.	Steam Rating	Water Rating	Hard Coal Fuel Capacity Lbs.	Base Dimensions	Grate Area Sq. Ft.	Flow and Return Tappings
417	400	675	145	24½ x 18	1.5	2—2½
517	575	950	195	24½ x 22	2.0	2—2½
617	750	1250	245	24½ x 26	2.5	2—2½
717	925	1550	295	24½ x 31	3.0	2—2½
817	1100	1850	350	24½ x 35	3.5	*3—2½
917	1275	2150	395	24½ x 40	4.0	*3—2½

Tappings provided for indirect water heater and hot water coils.

*8 and 9 section boilers have one additional return tapping on right hand side. Water line 46-inch. Flow tapping 56 inch. Smoke pipe 9 inch.

COLUMBIA RADIATOR COMPANY

PITTSBURGH
Office and Warehouse
McKeesport, Pa.
Phone, McKeesport 4175

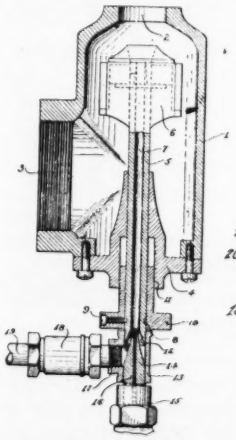
HARRISON, N. J.
Office and Warehouse
119 Bergen St.
Phone, Harrison 2900

NEW YORK OFFICE
Room 705
7 East 42nd St.
Phone, Murray Hill 9847

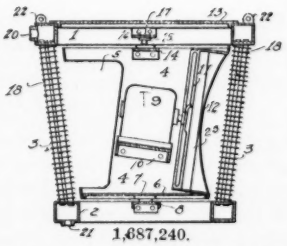
journaled to the body, said sheave being provided with gear-teeth, said sheave and hook lying in substantially the same plane, an elongated bending plate attached to the sheave and lying in the plane thereof, said plate having a hooked end projecting over the grooved edge of the sheave and adapted to grip the pipe or tube to be bent, the first-named hook serving as an abutment for the pipe or tube, a shaft mounted on the body and provided with a pinion which meshes with the gear teeth of sheave, and a handle whereby shaft may be turned.

* * *

1,687,105. Recuperator-Type Oil Burner. George F. Naab, Lakewood, Ohio, assignor to The North American Manufacturing Company. In a liquid fuel burner, a hollow body having openings arranged to pass high temperature air through the hollow thereof, an atomizing head having a stem extending in said hollow, said stem being tubular and having connection with a fuel supply at pressure greater than that of the air passing through said body and being arranged to convey said fuel to said head, and means for cooling said stem to prevent carbonization of fuel therein and comprising means for adding a cooling medium to fuel entering said stem, said cooling medium being at a pressure greater than that of said air and lower than that of said fuel.



1,687,105



1,687,240.

1,687,240. Unit Heater. Claude M. Garland, Chicago, Ill. In apparatus of the type described, an upper annular header, a connection for the admission of a heating medium to the said header, a lower annual header, a connection for the exhaust of the heating medium from the said lower annular header, heating elements establishing communication between the said headers whereby an inclosure is formed by the said heating elements, a cover for closing the opening in the upper header, means for closing the opening in the lower header, and means for causing a current of air to pass from without between a portion of said heating elements to the interior of the inclosure and out between a different portion of the said heating elements, and means for causing the said current of air to rotate about the center of the said inclosure whereby the said current of air is caused to continuously pass between different portions of heating elements.

* * *

1,687,349. Oil-Burning Apparatus. Thure A. Quart, Hartford, Conn. Apparatus of the class described including in combination with a gravity feed pipe line leading to a burner from a device for maintaining a constant level of fuel supply, a valve chamber in the pipe line below the predetermined fuel level, a valve seat in said chamber, a sleeve extending from the valve chamber to a point well above the predetermined fuel level, a valve

LEONARD

WATER MIXING VALVE

This Mixing Valve will meet your most rigid specifications. Size shown is the Model B-60. Temperature scale ranges from 80 to 120 degrees. Special temperature markings for bakery installations can be furnished from 40 to 120 or 120 to 180 degrees.

A catalog is waiting your request.

LEONARD-ROOKE COMPANY
Providence, Rhode Island

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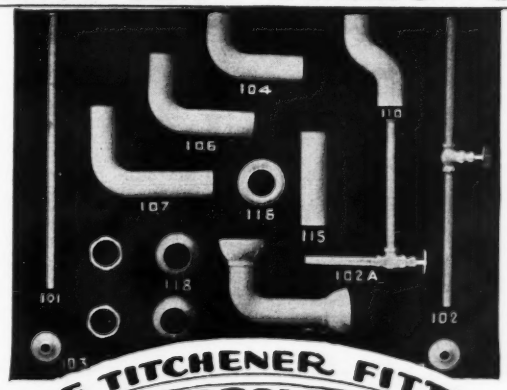

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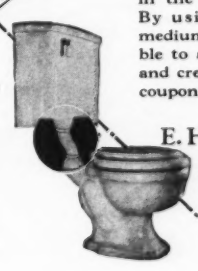
Quality white enameled fittings, that have been so hard for you to procure, are now within easy reach in the complete Titchener line. By using these fittings with medium priced closets it is possible to add extra quality features and create more sales. Send the coupon today for further details.



E. H. Titchener & Co.
126 Walnut St.
Binghamton, N. Y.

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all the year 'round
for your Customer
who has Duriron
acid-proof drain
lines to carry
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and you,
Mister Plumber,
make a better profit
on a Duriron job
than on other
pipe that does
not stand up

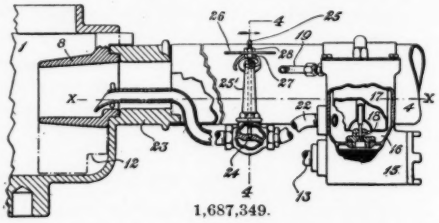
Duriron *alone*
resists the attack
of all acids
and is, at
the same time,
approved by
all codes

installed the same
and as easily as
e. h. castiron
soil pipe

made only by

The Duriron Company Dayton, Ohio

having a stem freely movable in the sleeve and extended thereabove, means including a cam for lifting the valve, and a disk secured to the valve stem for engagement by

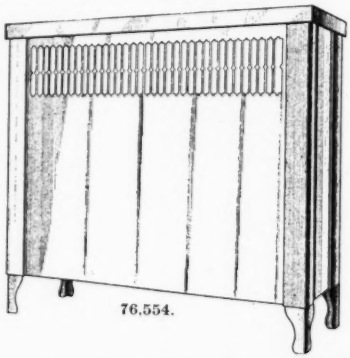


1,687,349.

the cam, the form of said disk being symmetrical so that the valve may rotate about its vertical axis without changing its balance.

* * *

76,554. Radiator Cabinet or Similar Article. Paul E. Schleicher and Walter C. Calcott, Gary, Ind., assignors

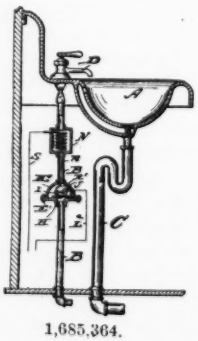


76,554.

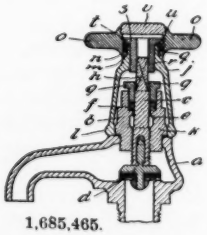
to Schleicher, Inc., Gary, Ind. The ornamental design for a radiator cabinet or similar article, as shown.

Plumbing Department

1,685,364. Electric Water Heater. Erich T. P. Kopatz, Dearborn, Mich. In a device of the character described, a water supply pipe; a valve controlling the delivery of water from the pipe; an electric heating element located in the water passage through the supply pipe; a chambered fitting connecting sections of the supply pipe; an electric switch contained within the chambered fitting; and means adapted to open and close said switch, actuated by the flow of water through the supply pipe upon opening and closing the discharge valve governing the discharge of water from said pipe.



1,685,364.



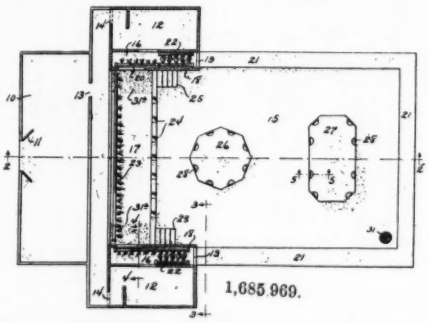
1,685,465.

1,685,465. Screw-Down Tap or Cock. George Neville Sperryn, Birmingham, England. A screw-down tap, comprising a body provided with a seating therein, a spindle carrying a valve head adapted to engage the seating, a

gland in the upper end of the body through which the spindle passes, a hollow casing sleeve, enclosing but out of contact with the spindle and gland, detachably secured upon the body and normally stationary thereon but readily removable without disturbing the spindle or gland, a handle provided with a shank extending through the upper end of the sleeve and slidably keyed to the spindle, and a readily releasable connection between the handle and the sleeve permitting independent relative rotation.

* * *

1,685,969. Swimming Pool. Joseph M. Vietti, Clinton, Ind. In a device of the character described, a swimming pool, check rooms adjacent said pool, wading pools be-

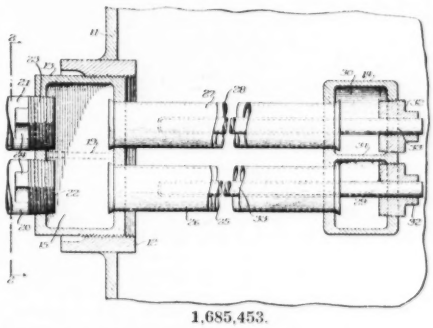


1,685,969.

tween said check rooms and swimming pool, and showers guarding all passages from the wading pools to the swimming pool.

* * *

1,685,453. Water-Heating Unit. Adolph T. Johanson, Chicago, Ill., assignor of one-half to Milton E. Page, Jr., Chicago, Ill. A water-heating unit for boilers, comprising in combination, an outer externally-threaded coupling adapted to be screwed into a threaded opening in the boiler-wall and divided into three chambers, four tubes supported by said coupling and adapted to be positioned on the inside of the boiler to be heated by the hot water of the latter, two of such tubes connecting individually to two of said chambers, the other pair of tubes both con-



1,685,453.

necting with the third chamber, an inner coupling divided into two chambers, one of said individual tubes and one of said pair connecting with one chamber of the inner coupling, the other two tubes connecting with the remaining chamber of the inner coupling, said inner coupling being supported by said tubes, internal tubes inside of said four tubes closed at their front ends and open at their rear ends to connect with the hot water of the boiler. plugs in said inner coupling carrying said internal tubes, means to admit water to be heated to said first coupling, and means to discharge heated water from first coupling.

* * *

1,685,816. Water-Softening Apparatus. William J. Kenney, Chicago, Ill., assignor to Zeolite Engineering Co.

The new DETROIT No. 50 Fire Pot

THIS burner may be removed without dismantling the fire pot and has a needle-valve which permits a very fine adjustment of the flame.

—has many Special Features

THE new Detroit No. 50 Fire Pot has a conveniently located control valve which permits the flame to be turned very low and keeps the metal at just the right temperature until the job is completed. It has a new burner which achieves perfect generation in less than a minute and a half. It burns kerosene or gasoline equally well and produces a clear blue flame which does not fluctuate and will not go out when turned very low.

Bought Because They're Better

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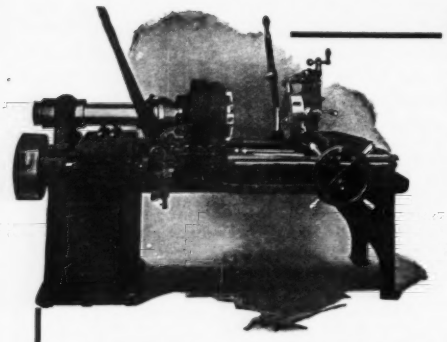
TORCHES & FIRE POTS
DETROIT TORCH & MFG. CO., DETROIT, MICH.
New York Office, B. S. Alder Co. - - 45 Warren St.
William P. Horn Co. - - Hallo Bldg., San Francisco
C. F. Gallager - - - 223 Main St., Hartford, Conn.
Grant-Chater Co. - - 415 Metropolitan Bldg., Toronto



PEERLESS B&K DUPLEX P·D·Q·C

INVENTORY TIME

Provides opportunity to check up on the year's progress. It is also appropriate to check up on equipment. Are the various machine operations handled in the most economical manner? Is the machine itself up-to-date and in good working order?

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Your request will bring full details of late improvements. Our experience may help you.

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PEERLESS B&K DUPLEX P·D·Q·C PEERLESS B&K DUPLEX P·D·Q·C

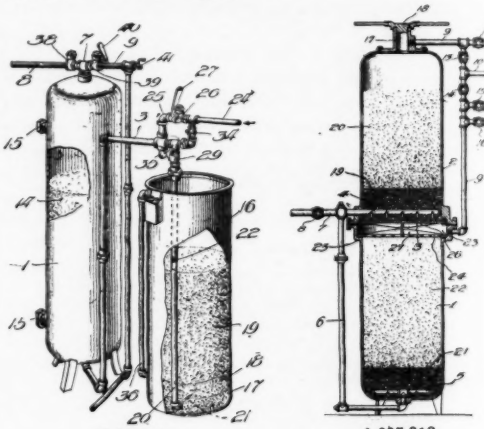
A Choice of the Best

THAT'S what you get in replies from a "Domestic Engineering" Want Ad.

No matter what your problem—if you want a job or a man for a job, if you have some used equipment to sell or want to buy some, if you want to know what the leading books on plumbing and heating are, if you want bids on a job—a "Domestic Engineering" Want Ad will solve that problem.

Domestic Engineering
1900 Prairie Ave. Chicago, Ill.

In combination, a treating reservoir, a brine tank, a siphon pipe having its inlet end arranged in and terminating a considerable distance above the bottom of the tank so as to be open to atmosphere when the liquid level in the tank falls to a predetermined point, a water pipe connected to the outlet end of the siphon pipe and to the reservoir, and means associated with said water pipe to produce a suction in said siphon pipe.

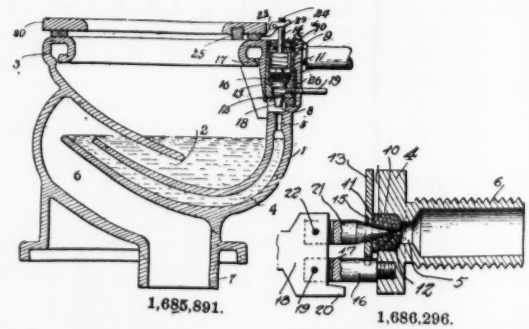


1,685,816. 1,685,818.

1,685,818. Combined Filter and Upflow Water Softener. William J. Kenney, Chicago, Ill. In an apparatus of the character described, a tank divided into an upper chamber and an independent lower chamber, a bed of zeolitic material in one of said chambers and a filtering bed in the other chamber, and means for causing water to flow through the chamber containing the filtering bed and then through the chamber containing the zeolitic material, and means for permitting salt to be introduced into the chamber containing the filtering bed whereby brine is formed and filtered before entering the other chamber.

* * *

1,685,891. Water-Closet Ventilator. William M. Watkins and George C. Finley, Long Beach, Calif. A water closet bowl having a discharge passage and a conduit, said bowl having a recess formed therein, a valve casing mounted in the recess and having a seat in its lower end,



1,685,891. 1,686,296.

a water supply pipe communicating with the casing above the seat, a valve co-operating with the seat, and normally cutting off the supply of water from the said pipe to the seat, said bowl having a chamber therein opening into the interior of the bowl, an injector nozzle fitted in the seat and extended into the chamber, said nozzle serving to discharge water into the conduit when the valve is unseated, to draw air from the bowl into chamber for discharge into conduit and a conduit connecting chamber and recess.

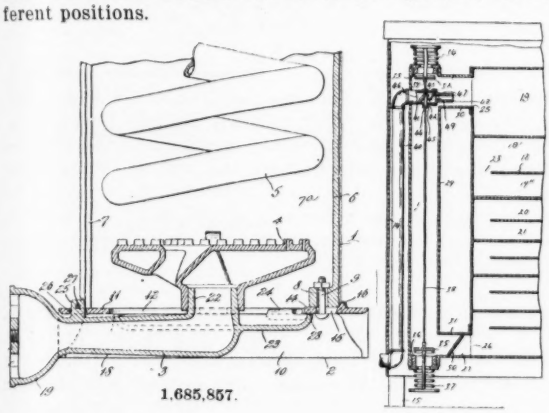
* * *

1,686,296. Automatic Water-Control Valve. John L. Skuttle, Mason City, Iowa. In automatic water control of

the character described, a valve casing head having a passage formed with a valve opening on the exterior surface of said head, a post projecting from said head, a plate pivoted to said post for vertical movement in its own plane, a float rod secured to said plate, a float on said rod, a valve plunger pivoted to said plate, a finger projecting from said plate adjacent said post to limit its downward movement about its pivot, a removable valve seat set into the valve opening, and a retaining plate for the removable seat.

* * *

1,685,857. Water Heater. Clarence H. Morrow, Cleveland, Ohio, asignor to The Hotstream Heater Company, Cleveland, Ohio. A water heater, comprising a casing provided with a front door opening and a base having a skirt, and a side feed burner mixer having a horizontally extending portion extending through the skirt, said base being formed to receive said mixer in a plurality of different positions.



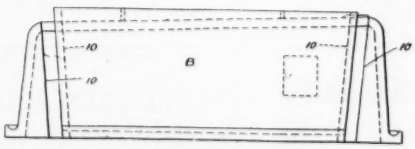
1,685,857.

1,685,819.

1,685,819. Safety Device for Gas-Radiator Systems. Elmer E. Ledbetter, Detroit, Mich., assignor to The Ever-Hot Heater Company, Detroit, Mich. In an internal combustion radiator heating system, the combination with a combustion chamber having a fuel inlet and an air inlet, of means for forcibly withdrawing the products of combustion through the combustion chamber, and means operable upon a predetermined lessening of the circulation through said combustion chamber for automatically closing said air inlet.

* * *

1,686,001. Pattern for Bathtubs. Henry E. Henricks, Beaver, Pa., assignor to The United States Sanitary Manufacturing Company, Pittsburgh, Pa. A pattern for a bath



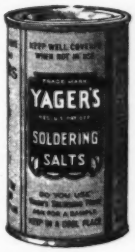
1,686,001

tub having a shield portion which is an extension of a tub wall, including a tub body portion and a shield portion, co-planar with a wall of the body portion, the shield portion being relatively movable with respect to the body portion to a position substantially outside the mold portion formed by the pattern.

* * *

1,686,415. Trap for Drains and Sewers. James Lyes, New York, N. Y. In a device of the class described, a container having an opening in the side wall thereof, a funnel-shaped device extending into the container below the opening thereof, providing a water seal, an upwardly

YAGER'S SOLDERING SALTS



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Not only is Yager's Soldering Salts the finest for soldering and tinning work but it can be used to a great advantage in lead work.

Ask your jobber about it or write us direct

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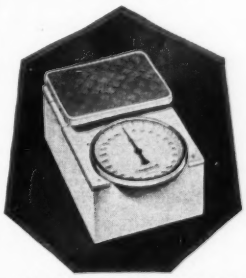
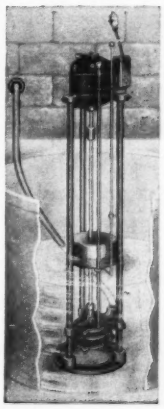
ALEX R. BENSON CO., Inc., Hudson, New York
For list of distributors see 1928 McRae Blue Book.
Sales Agency for Canada: Canadian General Electric Co., Ltd., Toronto and Montreal

You always make more money on HANSON WEIGH MASTER BATH ROOM SCALES



Superior non-tipping scales, finished in beautiful colors to harmonize with modern bath rooms. Send for prices.

HANSON BROS. SCALE CO. 546 N. Ada St. Chicago



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AUTOMATIC PIT & CELLAR DRAINAGE PUMP

Most dependable unit to be had

Non-rusting shaft, non-rusting bearing, non-rusting pump proper. Delivers the maximum amount of water a ¼ H. P. motor can pull without overload.

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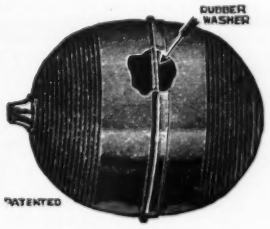
Manufacturers Deep Well Turbines, Centrifugal Pumps, Trench Pumps



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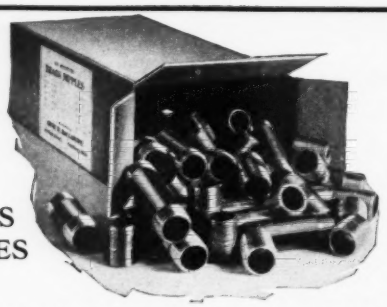
Millions of No-Sol Floats are functioning properly in service due to these facts regarding their construction:

1st. The float is full size, insuring the necessary buoyancy.

2nd. The copper wall is heavy and uniform in thickness—a guarantee of long life.

3rd. The patented spud insures complete protection against turning or leaking.

THE AYLING & REICHERT CO.
3047 N. Erie St. Toledo, Ohio



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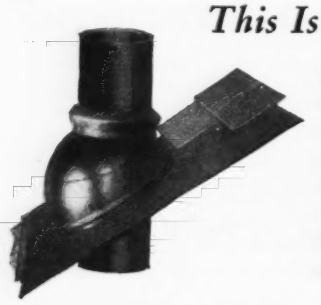
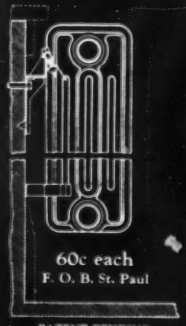


If you have been having trouble with your roof flashing installations and you want to definitely eliminate it, use Bullard Roof Flashings — it's the sure way out of it.

THE BULLARD SPECIALTY CO., *Tiffin, Ohio*



60c each
F. O. B. St. Paul

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FULLER Radiator Hanger

"Cheaper on the Wall"

Fits all radiators and wall conditions, is easily adjusted and costs less to install.

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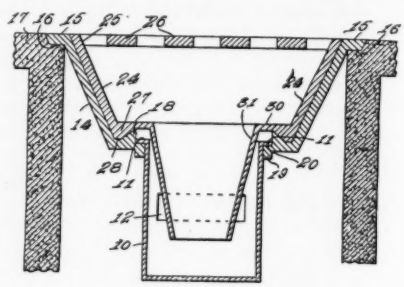
and outwardly flared element projecting from the upper edge of the funnel and offset from the wall of the funnel to provide an inwardly extending portion, and a dished



1,686,415.

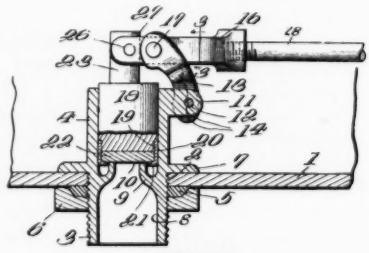
member receiving the flared element and having a flange for engaging the container at a point below the inwardly extending portion of the flared element.

* * *

1,685,301. Treatment of Polluted Wastes. John T. Travers, Columbus, Ohio, assignor, by direct and mesne assignments, to The Travers-Lewis Process Corporation, Columbus, Ohio. A method for treating acidified polluted waste water comprising causing the polluted waste water to enter the pores of calcium carbonate characterized by the fact that it has a porosity substantially the same as travertine in its natural state and be subjected to the neutralizing action of the latter.

* * *

1,685,987. Float Valve. Edward L. Delany, Brooklyn, N. Y., assignor to Delany Realty Corporation, Brooklyn, N. Y. A float valve comprising a casing, a valve therein extending beyond the casing and having one side cut



1,685,987.

away, a float lever pivotally connected to the valve, and a compensating arm pivoted to the casing and extending upwardly over the valve and pivoted to the float lever very close to the pivotal connection between the float lever and the valve.

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Where Other Interesting People
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Modern in every sense of the word, offers all of the "added features" which make up perfect service—bath with every room, circulating ice water, bed lamps, morning newspapers at "no higher" rates.

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Write us about your surplus pipe couplings.

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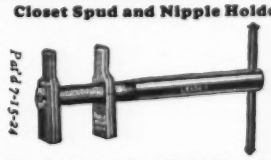

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Advertising Is a Specialist's Job

THE man who laid out this ad is a specialist. He knows the printer's types by their first names. He knows how to make your eye travel to the precise point he wants it to travel. He knows how to take the copy for this ad and make its essential points stand out so that you will "get them" in a glance. He knew just how this ad was going to look in type before he gave it to the printer.

The man who wrote this copy is a specialist. People say that he knows all the parts of speech in the English language. He knows enough six-cylinder words to mix with his one-cylinder words so he has what is known in baseball as a "change of pace."

You are a specialist. You know how much radiation you will need to heat a room of a certain size, etc., and you know all about vents, and soil stacks and the other gadgets in plumbing installations.

The advertising specialists call you in when they want a plumbing or heating job they know will work. They figure, naturally, that you ought to call them in when you want an advertising job that will work.

So, each week in "Domestic Engineering" you find the Retail Advertising Service page. It carries two newspaper ads (using the same illustration in each) a sales letter and a short publicity item, made up by the two specialists mentioned with the help of a third — the artist who makes the illustration.

The cost of that service is $4.20 for twelve weeks. In other words, we charge you 35 cents for the cut each week. We send you a new illustration cut each week and a reprint of the page. All you do is hand them to your local newspaper and your advertising job for the week is finished.

Here's the form that will give you the service of these specialists for the next twelve weeks. After that you'll never want to be without their help.

Tear out and mail this coupon—now!

DOMESTIC ENGINEERING,
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Please enter my order for three months' use of your Retail Advertising Service.

I'm going to advertise!

Name .....

City and State .....